Gleanings in Bee Culture

February, 1958 Vol. 86, No. 2

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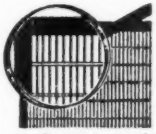

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Monthly HONEY Report

WALTER BARTH, Field Editor

EARLY CROP prospects for 1958 are exceptionally good in most cases, and colonies are generally in good condition. Apathy is still apparent in the marketing field, especially in the Mountain States, Pacific Coast area, and in a portion of the Plains States. Exports for the first six months (April-September, 1957) are reported to be 800,000 pounds above those for the same period in 1956. Wholesale prices for 60's in table grade honey ranges one-half to one per cent per pound below the prices paid in 1956.

In response to questions concerning the honey market in 1958, there seems little likelihood of prices going above current prices. We only can hope that better marketing practices can be introduced quickly to maintain a firm market at present prices. To achieve this firmness, and the hope of higher prices, some beekeeping organizations are planning to appeal to the Department of Agriculture for a higher price support for honey.

On the national scene the beeswax picture has changed suddenly due to a good surplus of wax. Producers' prices seem to average around 54c cash and 56c in trade. Since most processors have good stores of beeswax it is unlikely that there will be a rush for beeswax even at these lower prices.

In California early rains have been followed by a dry period. Recent light rain has helped but more is needed. In Washington prospects are fair with a hoped-for improvement in the retail demand for honey. Soon, all honey will be out of the producers' hands.

Here in Texas bees are going into winter in good shape. The condition of honey plants and moisture is good. Much the same is true for Arizona, New Mexico, and Oklahoma. White to water white honey brings 12 to 13c per pound. while amber is moving at 10 to 11c per pound.

North in the Plains states some good moisture was received recently and honey plants are in excellent condition. The 12-inch snows in Iowa in mid-November caught some bees unprepared. Honey is moving well at the retail level in that area with prices steady. Movement at the wholesale level is a little slow with prices slightly weaker than a year ago. Fortunately, no distress selling has been reported.

In the Great Lakes States retail sales remain good although the wholesale market is sluggish. White honey is bringing 13 to 14 cents and amber honey brings 11 to 12 cents per pound. Comb honey is moving very slowly. Honey plants are going into winter in excellent condition.

In the South bees went into winter in fair condition in most areas. In some areas honey plants are in good condition after the unusual heavy rains. This is particularly true in Alabama and Florida. The honey markets are strong in the South with prices settling at 10 cents for amber and 13 cents for white honeys.

In Pennsylvania, New York, and New England bees have gone into winter in fair shape. Honey is moving well with a particularly heavy demand for honey packed in small containers.

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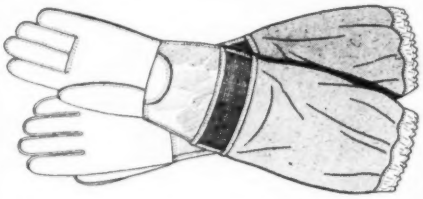

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Mayhew, Miss.

This stack of honey cans forms part of a crop taken from red stringybark in autumn of 1955 (January to April) and yielded 230 pounds per hive. Covered with corrugated iron for protection, it awaits the arrival of transport for delivery to the central depot or direct to point of sale.

Migratory Beekeeping in Australia

as practiced by ALFRED L. EASTLEY,
Goulburn, N.S.W., Australia

[This article was written in February, 1956.—Ed.]

MIGRATORY BEEKEEPING carries with it a romantic outlook, perhaps more on account of the bees and their habits than for those who earn their living from them. This applies the world over.

Much has been written on migratory beekeeping in Austr. lia, by the beekeeper himself, and published in practically all countries in the world. However, it seems that hard facts interest most commercial producers and I will endeavor to portray the same, purely as a means of information rather than in a romantic vein.

It is proposed to deal with what could be an average season's crop of honey in the State of New South Wales, according to whatever flora may be budded and yield honey.

An atlas or map of the State of New South Wales would be most helpful, covering an area bounded by Sydney (the Capital), then down the Coast to the border of the State of Victoria, then inland for about 200-250 miles, thence along an imaginary line parallel with the Coast to West of Sydney, covering an area of about 100,000 square miles.

The range of ground flora is most extensive, the majority pollen-bearing species and in many cases good sources of nectar. In the coastal belt around Sydney for about 30 miles, perhaps no

A trailer load of honey in three different size containers, extensively used in New South Wales, being moved from the point of production. Note the staff in "full battle dress".

greater variety exists in the world, covering most geological formations. The most notable is the world famous Hawkesbury River Sandstone belt which extends many miles inland, reappearing over the coastal mountains in many places, carrying coastal flora in an inland climate. This flora gives copious supplies of pollen with sufficient honey at times for a surplus. Accordingly it is used extensively to breed bees, and having a very mild climate in winter it is used also over these months to build up weak colonies which may have become sadly depleted in the autumn months—at the close of the season.

Spring Begins on September 1st

We usually move our bees to previously selected sites in August and September. If they are located in the Coastal belt we may leave them there a little longer than if wintered in the higher and colder climate. We favor wintering in near proximity to the snow line, if our hives are carrying plenty of bees and reasonable stores. If, however, hives are in poor condition we prefer the Coastal belt for breeding and stimulation, thus insuring strong colonies for the spring flow.

It is usual to move on to ground flora inland, such as Paterson's Curse, in early spring (September) which goes on blooming until towards the end of November. From this source we expect around 60 pounds per hive. Being a very valuable source of pollen, colonies build to such proportions in such a short time that we take advantage of this by drawing off large numbers of nuclei, using them to breed young queens thus getting honey and queens and preventing any swarming tendency that may exist. Bees bred on Paterson's Curse help maintain good colonies for prospective crops ahead.

In November we usually move to red gum (Eucalyptus Blakelyi) and yellow box (Euc. melliodora), red gum giving excellent pollen and a surplus of honey up to about 60 pounds per hive, while the yellow box, recognized as one of our very best honey trees, the main crop of the two. It has been known to yield up to 300 pounds per hive and we look forward to taking 120 pounds. As these species grow from approximately 1000 to 3000 feet levels it is possible to obtain two crops in one season, by moving on to lower altitudes then to higher altitudes about the end of December, which flow continues to about the end of February.

Alternative moves to above could be

yellow box with another species of red gum called river gum (Euc. rostrata) which follows the river levels. The latter commences to bloom in early December, finishing the end of January. This species is extremely temperamental to fluctuations in weather conditions and is generally considered an unreliable source of nectar. Black box (Euc. bicolor) grows in near proximity to the above, and at times is a valuable source of nectar, finishing by the end of February. Expectations from the above are 120-180 pounds per hive.

Yet another alternative in a different climatic region is in the Coastal belt for grey ironbark (Euc. paniculata), broadleaf or red ironbark (Euc. siderophoia), blackbutt (Euc. pilularis), yellow stringybark (Euc. mulleriana), all covering the same period to the end of February, and perhaps later than this, from which heavy crops of honey up to 600 pounds per hive have been recorded.

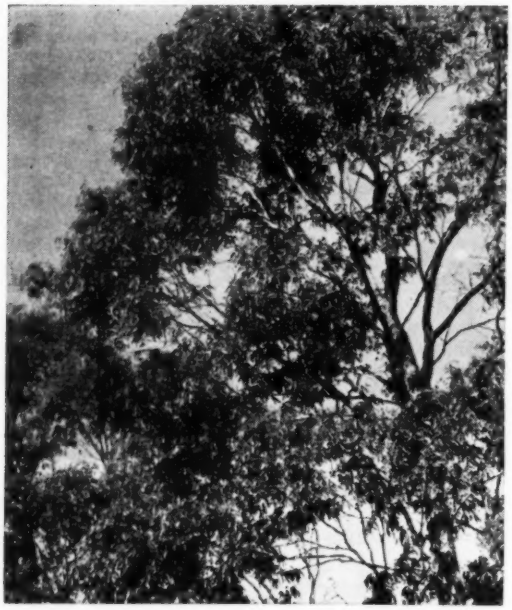
St. Barnaby's thistle — a welcome "import" from South America — is yet another alternative, but not as much favored as the previously mentioned, due to the fact that being a soft growing annual it is dependent upon favorable rains for continuance of honey production.

Other alternatives, which I do not propose to deal with in detail, are snow gum (Euc. coriaca), apple tree (Euc. elaeophora), messmate (Euc. gigantea), and others all found in the Snowy Mountains region in the South section.

From the end of February and the season drawing to a close in about April, the locations become more defined—higher altitudes for late apple tree and several species of gum, etc., or to the Sandstone belt near the Coast for bloodwood (Euc. Corymbosa) and scribbly gum (Euc. Haemastroma) which can yield 60-120 pounds per hive.

To many of us, one of our most cherished moves is on to the red stringybark (Euc. Macroorhyncha) in

An interested and intending exhibitor in the Royal Agricultural Society's Annual Show, held in Sydney in April 1955, being shown how to select and display a queen bee and her progeny, in a full dress rehearsal.



The heads of grey ironbark on South Coast of New South Wales from which a good crop of honey was taken this year (December 1955 to February 1956).

selected years found in the inland area on the hilly country in altitudes ranging from 900-2500 feet. Perhaps one of our most valuable trees, yet not generally recognized as such, it can yield up to 350 pounds per hive, and being a prolific pollen yielder it leaves little to be desired. It is possible also to breed quality queens and when coupled with good bees, and a large crop of honey, it is little wonder many of us look forward to the cycle of production when red stringybark will again be "on", taking us, as it does, from about mid-January to April.

Having concluded the above moves, the season can be classified as over, yet another phase commences—winter crops. There are many of us who prefer not to work winter flows of honey, unless the odds are loaded very much in our favor. The hazards are many and the failures likewise. Working the clock and calendar around does not appeal to us. Being on a migratory basis for about seven months of the year and away from home on and off for this period, maintenance and repairs and other general work tends to become neglected.

From April to September the weather can be as opposite as the two poles, hence the risk, and I feel that more money has been lost on winter "flows" than has ever been taken from them.

Generally speaking there are two areas—Inland and Coastal. Inland there is nugga (Euc. sideroxylon) and white box (Euc. albens), while in the Coastal belt spotted gum (Euc. maculata). As the Inland receives its heaviest rain and coldest weather over these months it requires little imagination to see how averse some of us are to considering these "flows". As the Coastal belt receives its driest period over these months, the reverse to Inland, it is natural to assume that the Coastal belt is the logical choice.

As spotted gum blooms from April to August, when conditions are driest, the climate mild, and a yielding potential of from 30-60 pounds per hive, we can get honey and good hives and be in readiness to go back Inland in August or September to take full advantage of any crop that may be offering, with hives in a forward condition. Spotted gum can yield very heavily too, as many of us know. As an example,

An out apiary in the foothills of the Snowy Mountains in Southern New South Wales. The two operators are "taking off" honey which is wheeled into the modern mobile extracting plant located nearby.

the winter of 1954 crops of 180-240 pounds per hive were not uncommon.

May I be permitted to add that the foregoing may look very well in print, but is only given as either an idea of the potential or in some cases as an expectation. Much depends upon whether the species mentioned are budded or not, and it is usual to find that it is seldom all species are budded in the one season.

The foregoing is an outline of an

A corner of a large apiary in the foothills of the Snowy Mountains, working red stringybark. These hives were filling up and averaging over 60 pounds per hive every seven to ten days during the flow.

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A panoramic view of the Kangaroo Valley, about 50 miles south of Sydney, amid the mass of mountains and valleys heading inland from the Coast. This country is highly developed agriculturally, thus leaving hilly country for timber with valuable pasture crops on the flats.

average season's activity, within a radius of about 200 miles from my central depot at Goulburn, and can be applied to other centers in New South Wales with varying distances of travel. There are some who move longer distances than this, distances up to 300 miles are not uncommon. Australian roads are bad.

Financial Returns

Large crops can be produced, long distances travelled over bad and good roads, only to find that at the end of the year the returns are not commensurate with the labor and investment involved. Smaller crops can be produced travelling shorter distances with more time for leisure—or more bees can be worked—showing a net return much greater, with less effort.

During the last few months the position in regard to volume of sales has increased with a distinct hardening in prices. At the end of last season, i.e, May, 1955, top price for choicest honey was 11d. per pound wholesale, and when based on an American dollar being worth 8/8 to 8/9 Australian currency, is equal to a little more than 11 cents per pound wholesale. At the end of January, 1956, the price had risen to 1/1 to 1/3 per pound Australian or 13 to 16 cents in American currency, and very much sought after.

Beeswax prices were 4/5 to 4/8 Australian, 56 to 58 cents American currency, in May, 1955, while the price at the end of January was 6/- per pound or 75 cents approximately in American currency, with every indication of an additional rise in price. It must be pointed out, however, that there has been a poor crop of honey and beeswax in Australia this season, and prices should hold at above levels until at least December, 1956.

The foregoing covers but a brief outline of sources of production in one section of New South Wales. An article of a specialized nature would be necessary to give the reader a better picture of Australian beekeeping. Honey and beeswax prices are given for a comparison with American prices.

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Do Your Bees Have Enough Pollen?*

MYKOLA H. HAYDAK,
Department of Entomology and Economic Zoology
Institute of Agriculture, St. Paul 1, Minnesota

POLLEN IS very important in the diet of bees. It is essential for the development of young bees and the preparation of food for the larvae. Without sufficient amounts of pollen, the production of strong colonies, so indispensable for good honey crops and efficient pollination, is impossible.

Because of some unfavorable conditions there occurs occasionally a scarcity of pollen in nature. At such times beekeepers have offered their bees flour meals or some other foods which were supposed to take the place of pollen in the nutrition of bees. Attempts to find out whether such foods could actually be utilized by the bees were started in 1867 when A. I. Root performed his feeding experiments. For four or five months he kept several colonies of bees in a greenhouse. He induced the bees to rear brood by offering them flour and also was able to prevent brood production by withdrawing this pollen substitute. Many experiments have been performed since that time but still there is no agreement among the investigators as to the food value of pollen substitutes as compared with natural pollen.

In beekeeping literature we find many controversial reports on the practical results of feeding pollen substitutes to bees. Some beekeepers report a tremendous build-up in those colonies while others are very much disappointed in the results.

For a number of years the value of pollen substitutes as food for the bees has been studied at the Minnesota Agricultural Experiment Station of the University of Minnesota. Small colonies, consisting of about one and a half pounds of freshly emerged bees, which have never eaten pollen, were placed in nuclei kept in cages and fed candy made of various pollen substitutes. The brood production of these colonies was followed and recorded.

In comparing pollen substitutes and a pollen supplement, it was found that a pollen substitute consisting of a mixture of soybean flour and dried brewers' yeast was twice as efficient in the production of bees as was a pollen supplement having one-year-old pollen from a pollen trap mixed with soybean-flour in the same proportion as the pollen substitute.

Next, the pollen substitute was compared with the beebread offered in combs to the experimental bees. The result showed that beebread was about nine times as efficient as the pollen substitute. Addition of 10 per cent pollen from pollen traps increased the value of the pollen substitute about twice. What is the cause of such a difference? It is possible that the proteins of the pollen substitute do not

* Paper No. 963, Miscellaneous Journal Series, Minn. Agric. Expt. Sta., St. Paul 1, Minnesota.

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provide, in sufficient amount, all the components necessary for the growth of bees. For this reason the pollen substitute was fortified with dry skim milk, which has a good quality of proteins. Moreover, the pollen substitute candy given to the bees has only 12 per cent protein, while beebread, on an average has close to 20 per cent. Therefore, it was decided to increase also the protein content of the pollen substitute by adding finely powdered commercial casein to it.

The results showed that a simple addition of dry skim milk considerably improved the diet. Further increase in the protein content by an addition of commercial casein gave still better results.

Finally, these improved pollen substitutes were compared with the air-dried pollen collected at the time of the experiment from the traps in the apiary. The results are presented in Table 1.

From this table it is evident that the pollen substitute fortified with commercial casein was not inferior to pollen used at the same time by the colonies in the apiary. However, the bees fed pure pollen consumed about twice as much food as those given pollen substitute.

For practical purposes a pollen substitute consisting of three parts soybean flour (expeller processed or solvent extracted and heated afterwards with fat content 5-7 per cent), one part dried brewers' yeast (bitter, for animal feeding), and one part of dried skim milk could be recommended. An addition of 10 per cent dried egg yolk and 10 percent finely ground commercial casein will improve the food value of the mixture. However, the latter two ingredients are rather expensive.

Instead of the dried egg yolk, fresh egg yolks may be added. Use three or four fresh egg yolks for each pound of dry pollen substitute. Beat the yolks with a little sugar solution and then mix it into the food when making pollen substitute candy. If one lives on the farm with plenty of fresh skim milk available, one may use the latter instead of water in preparing sugar solution. Preliminary feeding experiments in our laboratory showed that such mixtures, though lower in the food value than when dry egg yolk and dry skim milk are added, give satisfactory results and, consequently, can be used when dry skim milk or dry egg yolk are not available. Instead of dried egg yolk, 10 per cent pollen can be added, by those who practice trapping pollen or rendering it from pollen combs. In localities where it is abundant, cotton seed meal, finely ground or sifted, can replace the whole amount or a part of soybean flour in the formula of pollen substitute.

The most convenient way of feeding pollen substitutes to colonies outside is to offer it dry. Place the substitute in shallow trays (these can be made by cutting down the sides of corrugated paper boxes) and offer it to the bees in a sunny and protected place in the apiary. Such trays should be shielded from rain.

A more economical method of feeding pollen subtitute in the apiary is in the form of sugar candy. To make the sugar syrup, dissolve two parts of granulated sugar in one part of hot water by volume. Thoroughly mix one quart of cold sugar syrup with one pound of dry pollen substitute by pouring the liquid into the substitute. However, this formula can be modified. With different brands of ingredients, you may need to use somewhat more or somewhat less sugar solution. The cake should be of such consistency that candy will stay on the top bars of the frames without running down.

The above mixture will provide about three and one-half pounds of candy which consists of one pound of dry pollen substitute, about one and one-half pounds of sugar, and one pound (pint) of water.

To prevent drying, cover the candy in the container with waxed paper and pat it down so that it will adhere to the surface. Allow to stand overnight so that the liquid will penetrate the dry particles of food. It is then ready to use.

With a wide scraping knife or a hive tool, spread the candy over a piece of waxed paper in a layer about one-quarter to one-half inch thick. Open the hive, smoke away the bees, and place the cake directly over the cluster on the top bars of the hive so that the waxed paper is on top. Invert the inner

Table 1. Comparison of pollen and pollen substitutes.

Diet	Protein in the diet Per cent	Number of Sealed Cells	Brood production index
Soybean flour & dried brewers' yeast & dried skim milk & dried egg yolk (2½:1:1:½)	12.5	6236	1.0
Soybean flour & commercial casein & dried brewers' yeast & dried skim milk & dried egg yolk (1:1½:1:1:½)	21.2	10154	1.6
Pollen	12.7	9365	1.5

cover of the hive to provide space for candy.

Begin by giving about a pound of the candy to each colony. Repeat feeding every seven to ten days, increasing or decreasing the amount depending upon the amount consumed in the previous period.

Once started, the pollen substitute (either candy or dry material) should always be available to the bees as long as natural pollen is lacking. Any interruption in the availability of the pollen substitute may cause a setback in brood rearing.

If the bees do not touch the candy substitute, change its consistency. If the bees still do not take the substitute, stop feeding. There may be enough stored pollen in the hive. However, leave the cake on the frames for a couple of weeks; quite often the bees start taking it.

When using pollen substitute for packages, do not give the cake at the time of installation. Wait about a week and then start feeding, placing the food directly over the brood nest.

In computing the amount of food necessary for the apiary, remember that candy made of one pound dry pollen substitute and a quart of 2:1 sugar solution will provide food for a single feeding of three or four colonies, depending on their strength. Estimate how many times you are going to feed your colonies (about eight to ten times if you start your feeding in March). Multiply by this number the number of your colonies and divide by three—this will give you the approximate number of pounds of dry pollen substitute you have to prepare. Make only as much candy at a time as you need for a single feeding of your colonies. Unless placed in a freezer, the candy does not keep well in storage. The dry pollen substitute can keep more than a year if stored in tightly covered containers and if kept in a cool place free from insect infestation. If stored over a year, it is advisable, however, to admix fresh dried brewers' yeast in proportions of three parts of old pollen substitute and one part of new dried brewers' yeast.

One Way to Prevent Spread of AFB

THE OFFICIALS supervising apiary inspection feel that one of the ways in which the serious brood disease of honeybees, American foulbrood, can be prevented from spreading, is by winter inspection of apiaries on good flight days. Sometimes such diseased colonies are not detected during the previous growing season and they become queenless, extremely weak, or die at various times during the winter. Stealthy robbing may go on in queenless or weak colonies and if disease is present other healthy colonies thus become infected. Dead colonies are soon robbed and all spore containing honey is removed to other colonies. After a short time in this condition, these weak or dead colonies show little or no flight on good flight days. Examine all non-flying or weak-flying colonies on such good flight days and remove to bee-tight storage any colonies in such condition in order to make a more careful examination. If such diseased, weak, or dead colonies are removed from apiaries early enough, and before robbing takes place, much spread of the disease can be prevented.—From Kansas Beekeeper, December 1957.

Mr. Martin holding a comb of brood well covered with bees.

A Bee Inspector Who Enjoys His Work

RUSSELL A. MARTIN
Apiary Inspector, Orlando, Florida

I HAVE BEEN an apiary inspector here in the Sunshine State for approximately nine years. My interest in bees began years ago and far from my present home. When only a boy in my home state of Missouri, bees always fascinated me. I can remember lying for hours in front of a neighbors' beehives observing the habits of these interesting insects.

I loved the bees even then and had a great love for the honey that they gathered from the various flowers. Many were the times that I have taken a broom and a bucket down to the railroad tracks alongside the grain elevators. There the grain cars would be swept until enough mixed grain, such as corn, wheat, oats, and rye had been gathered to trade for honey-in-the-comb. This was the way the beekeeper kept his chickens for practically nothing.

I had always wanted bees, but my father thought of the beekeeper in general as being a lazy and shiftless fellow. It was not until after I became a young married man that I had my first hive of bees.

A group of us were sitting on the front porch of our aunt's house near Kearney, Missouri, when a large swarm of bees came as if sent from heaven and clustered in a plum tree, not 50 feet from where we were sitting. How I did want that stray swarm. My aunt suggested that we go to a neighbor's house a few miles away, and borrow an empty hive to put the bees in. Somehow I managed to shake those bees into the hive and they stayed.

From that first stray swarm my next move was to buy several new factory-made hives and some package bees from the South. That was some years ago, but I can say today that this has

been a very enjoyable work.

My work of inspection is a unique one, to say the least. A good apiary inspector, first of all, must be a good beekeeper, one who is able to answer the questions that a beginner with only a colony or two may ask. The large commercial beekeeper is usually well-versed in his work, but he may also ask the apiary inspector's advice on various subjects.

The most common subject between inspector and beekeeper is apt to be bee diseases. The detection and eradication of disease has been a big problem in all states where bees are kept extensively, and all progressive states now have inspection laws.

Here in Florida we estimate that there are about 270,000 colonies of honeybees kept in some form of beehive. The Sunshine State is proud of its honey production record. It takes seven inspectors working full time in Florida to keep the disease in check and the eradication program going forward.

There are several diseases that cause worry and economic loss throughout the United States. The worst of these are the foulbrood diseases. Three of these are American foulbrood, European foulbrood, and para foulbrood. The American type has, so far, proved the hardest to combat and has caused widespread losses to the industry. As the name would seem to imply this is a brood disease, or disease of the honeybee in the larva and pupa stages, before it emerges from the comb as an adult bee. These three diseases show a great deal of resemblance to one another. For this reason alone many beekeepers need the advice of their inspector. European and para are easily eliminated by requeening each colony with a young queen raised from stock that is resistant to these diseases. The new drug terramycin is a good one when dusted on the infected frames of brood after the requeening procedure.

American foulbrood is still number one on the disease list, because of its persistence in making a comeback after methods of eradication have been instituted.

The sulfas, as well as other new drugs, have been tried with but little success. The approved method of eliminating this disease from apiaries is still by burning the diseased bees, honey, and equipment. This, of course, is a great loss to the beekeeper, as well as to the ones who benefit from the service of pollination that the honeybee renders.

Many people think of the honeybee as a vicious little rascal that is just waiting for someone to come along, then an attack is made for no good reason at all. In all my years of opening thousands of beehives this conception has been found to be erroneous. Bees are really more gentle than they are given credit for. I have torn their homes apart to inspect their young without receiving a sting. Once in a while a colony will give trouble under certain conditions. Usually, this may be bad weather conditions, or carelessness of the beekeeper.

The judicious use of the bee smoker is the best way to prevent bees from stinging. The smoker does not hurt the bees when used right, but merely scares them. The bees then proceed to fill their honey sacs with all the honey they can hold.

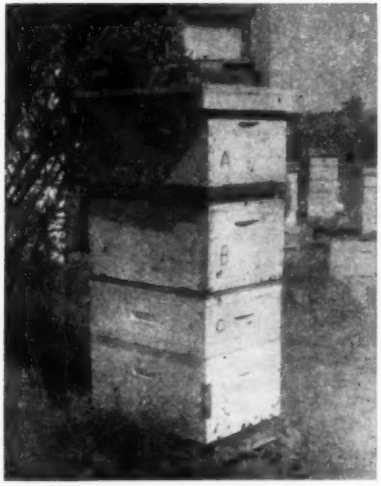
The bees' greatest service to mankind is in the pollination of the different farm crops. It would be hard to estimate what this is worth. In some cases the beekeeper is paid for the services that his bees render. The honeybee is undoubtedly one of man's most important insects.

"Cut the comedy, Mac . . . . we're not really stealin' it from them, ya know!"

Better Queens

Rearing the Cells

as practiced by JOHN W. HOLZBERLEIN, Meeker, Colo.

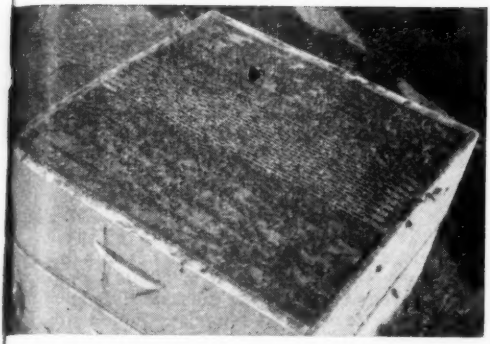


Cell-starter colony serves the purpose of a "swarm box."

(Continued from January)

HAVING MADE the selection of a breeder queen either by purchase from a reliable source or selection from a colony with an outstanding record you are ready to plan the rearing of queen cells. No one should attempt to rear queens in a serious way without first having read at least two or three good books on the subject. Doolittle was the first man to develop a technique for rearing queen cells on a scale that could be expanded to commercial operations. His system is pretty much the basis for all modern queen rearing and it is regretable that his book is out of print. "Queen Rearing" by Drs. Laidlaw and Eckert is the most modern work on the subject and one of the most complete.

The physical qualities of a queen are largely dependent on the care she has as a larva. Her feeding should be lavish from the time the egg hatches. The size and type of the queen cell that she will emerge from does much to determine the size and vigor of the adult queen. There are quite a few methods of getting bees to produce queen cells, but some experience with most of these methods has convinced us that the largest, best fed cells can be most consistantly produced by the double grafting method coupled to the cell-finishing program that will be later outlined. Since all this feeding of the larva has



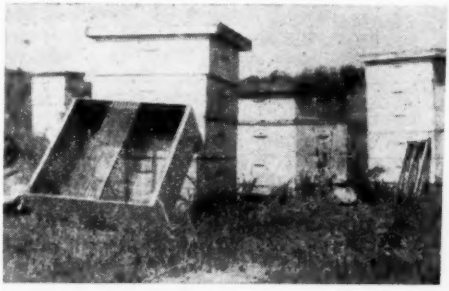
Inside the cell-finisher colony. Bees driven down by smoke to show the queen cage in use.

to be done in a period of only five days it pays us well to go to the extra trouble necessary to produce the best possible queen, for her influence on the colony, where she will finally take over, will be felt for the better part of two productive seasons.

A large part of the technique to be described was worked out by Dr. C. L. Farrar at the Bee Culture Laboratory at Madison, Wisconsin. A few minor phases of his system have been altered to fit our own operations better, but the technique used is essentially all his. We have used it for enough years now to know that it works, and with it have been able to produce high quality queen cells on a fairly large scale under all types of weather conditions. Most all of the different rearing methods will produce satisfactory cells under ideal weather conditions. It is when good conditions fail to materialize that the system to be outlined pays the best dividends. When queens are to be reared in time to be used to build honey-gathering colonies for the current season it is necessary even in the South or in California to be prepared to meet early spring conditions that are far from ideal. Too often these periods of bad weather result in the production of inferior queens that the producer feels unwilling to discard since the demand is so great at this time.

At least 30 days before the first laying queens are wanted preparations for cell building should be begun. If only 100 to 120 queen cells are wanted at a time only one unit need be set up. This unit consists of five colonies, two cell-starter colonies, two cell-finisher colonies, and one nurse colony for the cell-finishers brood. If more cells are wanted several multiples of these units can be established, but in this paper all references will be made to one five-colony unit. The cell-starter colony can be any strong colony. Its strength can be boosted by giving emerging brood ahead of time or by the addition of young bees.

One day before using the cell-starter colony the queen is put down on the oldest brood and the younger brood is



The two cell finishers and between them a nurse colony for brood. Also showing the type of super in which the queen is kept caged.

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placed in a story above an excluder. This has the tendency to attract young bees of nurse bee age above the excluder where they will be readily available. Good strength in these colonies is necessary so that when the starter or "swarm box" is set up next day there will be enough bees left below to carry on normal brood rearing and field activities. It takes four to five pounds of bees to set up a good swarm box capable of starting 60 cells in cool weather. We do it as follows: In the center of the empty swarm box super, (A) of picture 1, we place two frames of pollen with about an inch space between for later receiving the frame of cells. On each side of the frames of pollen we place a division board feeder about half full of 1 to 1 sugar sirup. Combs of new honey are just as good but seldom available for early queen rearing.

This hive is set onto a double screen at one side of the colony and from hive (B) we now shake four to five pounds of bees off of the brood in that hive that was set up the day before. This screened hive of queenless bees is then set on top of the hive of brood and given a slotted cover that will make it easy to install the grafted cells when they are ready. In an hour these bees will be ready to accept queen cells and start drawing them, in fact they will usually take them in 30 minutes, but we have always felt that better results were had when more time was given. Two or three hours are all right to leave them set if other work needs to be done before grafting.

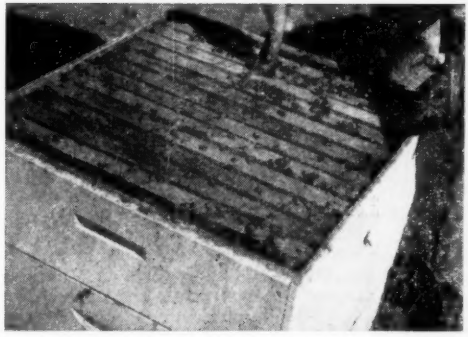
On the day that the first or primary graft is to be made the finisher colonies should be set up so that they will be ready for the second graft when it is made approximately 24 hours later. We use our square, shallow hives for these finisher colonies for this equipment lends itself almost perfectly to this work. I am sure that almost the same results could be obtained from the use of standard 10-frame equipment as only one of the four or five supers used needs any special construction viz. the queen cage super. This queen cage super is so built that the queen may be confined on two or three combs at all times. We use three combs and leave one with the queen at all times. The other two are changed every four days, as will be explained later.

As shown in picture No. 3 the two finisher colonies have one common brood nursing colony between them. This is used so that the finisher colonies have only queen cells to feed. However, they do not lose their brood as it is returned to them once it has been sealed. When the finisher colony is set up the queen is confined in her little compartment. The comb in the center which we leave with her at all times is made up of brood of all ages. The combs given on each side which will be removed in four days should if possible be of emerging brood, as the queen will lay in this type comb most readily.

If combs of emerging brood are not available then empty combs that have been polished by the bees preparatory for laying may be given. These outside combs should be marked with the date on top bars, then as they cycle around and are ready to emerge may be given back to the queen again on the 20th day. By this time the queen and the whole cell finisher colony will be established as a smoothly operating unit. After the queen has been established in her compartment the two largest combs of young brood are put into the nursery colony and the rest of super filled with the oldest brood left. In eight days or by the time the third round of cells is given, the finisher colonies will have only sealed brood outside of the queen compartment. Although these finisher colonies feed no brood outside of the queen compartment they should have no trouble in maintaining a fairly constant population, for the combs given to the queen will be laid almost solidly full of eggs. All of these colonies should be strong colonies with a good population of young bees when first made up.

If such colonies are not available when the time comes for making them up they should be built up by the addition of frames of emerging brood or by giving young bees as suggested for the starter colonies. This can best be done by shaking the bees from combs of brood from other colonies in the yard that are known to be free from disease. If these combs are shaken at the entrance the old bees will mostly fly back to their own hive while the young bees will crawl into and be accepted

These three colonies are capable of finishing 120 top quality cells every three or four days.



Top view of the nurse colony. As brood advances in age it is moved to the outside and when sealed is returned to the cell finisher from which it came. At each operation it has four combs of eggs given and four combs of sealed brood (as indicated by hive tool) taken away.

by the hive we wish to strengthen.

The completed finisher colony should shape up as follows: The lower super should be full of combs heavy with honey and pollen, shown as H & P in the picture. This is a must. The second story contains the queen and brood and is marked (Q). The third super (C) should contain combs with small spots of sealed brood and some honey and pollen. A considerable part of this super will later be filled with the more mature queen cells. If any open brood is placed in this super at the time of making up the colony it should be surely checked for queen cells in eight days. It is a good idea to check all combs where cells might be found at this time for they will surely start them, and an emerging virgin later on can upset all one's careful plans and work. The top super (A) should be made up of dark empty combs to encourage the storage of incoming nectar or syrup given as feed as far from the brood nest as possible. As a flow develops and these combs fill up they should be removed and replaced by other empty **dark** combs. White combs or foundation are no good for this use as they will cause the storage of honey in the brood compartment thereby crowding out the queen. Her space for egg laying is small and it is important that she have every bit of it.

The heavy supers from the top may be put below the queen compartment or if this super is not needed by the finisher colony these combs may be used for the nucs which one will be making up by this time. It is highly important that a super of heavy combs be maintained on the bottom board at all times as an insurance against a shortage of stores in case of bad weather. Once the queen is caged and queen cells given there will be little tendency for the colony to gain strength. The two frames the queen will lay full every four days plus the comb that is left with her will just about maintain a constant population. If for any reason the colony seems to be losing strength a frame of sealed brood may be added well in advance of serious population depletion. Accidents sometimes occur. Last year our cell-finisher colonies suffered a severe

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loss of adult bees by the careless application of spray containing parathion to a nearby orchard. We were hard put to get them back into shape by the addition of young bees and emerging brood and it is doubtful if they were ever as good as if they had been allowed to develop normally.

There is considerable difference in the ability of different colonies to build good queen cells. There seems to be no sure way to judge them for this quality in advance. For this reason it is well to have several good colonies on hand that may be used on short notice in case some of those originally selected turn out to be rearing inferior cells though all other factors are favorable. It is regretable that there is no way to distinguish in advance which colonies will rear the best cells. Some strains seem to be better than others and yet even these better strains sometimes produce a poor cell finisher. As they work at it all colonies seem to improve in their cell-building ability. For this reason it is well to start in time so that the whole first batch of cells may be discarded, for the second round is almost certain to be better.

Now a word about the specially built compartment in which the queen is kept caged. It is made by tacking a full size excluder to the bottom of the super. In the right location to conveniently contain three combs, the sides of wire queen excluder material are fastened. These may easily be slipped into saw kerfs made in the ends of the super and should reach from the bottom of the super to the top so that when the perforated zinc cover is fitted to it there will be a bee space on top of the combs.

The center colony in picture No. 3 is set up to feed the brood of the two cell finishers on either side of it. To it are given the two frames of eggs and young larvae from each of the cell finishers every four days. As they are matured and sealed they are then returned to the parent colony from which they came. This puts quite a brood feeding load on this colony but a good strong colony seems to be able to do it with no ill effects to the brood. It should be started with an abundance of stored honey and pollen and should be checked regularly for stores as it will have little chance to gain any surplus even under good conditions.

In times of dearth one should be prepared to feed this colony as well as the cell builders. It may be a three-story colony, and should be set up like this: Again the lower story should be made up of combs heavy with honey and pollen. The queen is confined in the second story by excluders on her own brood, and in the third story (B) the brood from the cell builders is placed; the younger brood being put in the center and then gradually moving it toward the outside until on the day the third lot is given there will be two combs of sealed brood to be returned to each of the cell-finisher colonies. This will keep 12 frames of brood in the top super of this colony until queen cell building is concluded.

This brings us to the point where we are ready to begin grafting. This phase of the operation will be taken up in the next installment. Describing all these operations seems rather tedious. The actual operation of this system seems rather simpler than trying to describe it in writing.

(to be continued)

Freeze Hits Florida

IT IS STILL a little too early to tell just what the condition of our citrus bloom will be this spring. While the severe freeze last month did a great deal of damage to the present citrus crop it may not have much effect on the bloom. The bloom on citrus trees comes on the new growth so unless we get another freeze after the new growth appears, we should have a more or less normal season.

There are a good many areas where the trees themselves were killed back and naturally there won't be any bloom in these areas, but I don't believe there was enough of this type of damage to affect our flow.

Naturally we are all concerned about the forthcoming weather. When trees have been set back as severely as a lot of our citrus was, they are prone to start a flush of new growth at the first sign of warm weather. Then a late freeze will really be serious. — F. A. Robinson, Assistant Apiculturist, Gainesville, Florida.—Written January 6, 1958.

Concise History of Beekeeping in Ontario

MINNIE "BEE" KNIGHTLEY, Roslin, Ontario

Minnie "Bee" Knightley, born 1886. Started with her brother in beekeeping 1898. Still at it today with 100 colonies.

HISTORIANS LEAVE us somewhat confused as to whether the honeybee is, or is not, native to the North American Continent, because no absolute proof is available. One historian wrote that the native Indians referred to the bees as the white man's flies, and considered them as a sign of the coming of the white man to invade their domains. In addition to this historian's reference there seems to be no words for bees or honey in the various tribal languages, so, it may be fairly accurately concluded the wild black bee we know today is a development of those which reverted to natural habits from bees brought in by the earliest settlers.

It is generally accepted that the honeybee was brought to the American Continent by migrating whites, French, Dutch and British. It has been definitely established, however, that colonies of bees were here as early as 1615. Evidence of their existence here appears in early writings which indicate that sugar was so scarce and so expensive that the earliest settlers in Amsterdam (now New York), also the New England States brought them in for general purposes such as sweetening, the preservation of native fruits, and in many instances in medicinal concoctions for stomach and respiratory ailments.

It is written that the earliest bees in Ontario were to all intents and purposes allowed to live in a wild or natural state, and by their natural course of swarming, or migrating, they gradually increased and found their way as far west as the Great Lakes. Invariably the hive or colony was to be found in hollow trees and in the cavities of the rock formations. The dire necessity of sweetening and warming substance in the diet, in addition to the curing of maple sugar, an art the white man learned from the native Indians, caused the white man to hunt or course for honey in a like manner to hunting for birds, animals, and fish, to provide food. This hunt for honey, or as it is referred to, as seeking the bee trees was carried on by several different methods. By observation it was learned that the honeybee always travelled against the wind when loaded with nectar, so the hunters or coursers made a practice of watching the flight of the bees and following them to their ultimate goal, the tree or rock crevice where the stored honey would be found.

Another method was to lure the bees into some cage or enclosure with a sweet substance and then allow them to escape through a small aperture large enough for only one bee at a time to be free, and to follow their direction to the colony. In addition to taking the stored honey, some enterprising pioneers devised methods of capturing the whole colony and taking them by foot trail or canoe to the settlement and crudely housing them to insure a constant supply of honey for their respective families. In this way, almost every family or settlement kept a few colonies of bees. This may be referred to as the inception of commercial bee-

keeping as we know it today, because any honey in excess of the family or colony needs was sold or bartered to provide other necessities of life.

From authentic information available it is known that one "Quinby" took up commercial beekeeping in New York in 1828, and that "Langstroth" started with a few hives at Andover, Massachusetts in 1837. Books written by both these gentlemen at about the same time have influenced and helped the growth and development of beekeeping as an industry in the Province of Ontario. It is so indicated that the pioneering in beekeeping occurred in Ontario in the early 1800's. The publication of the "Canada Farmer" which began in 1864 was the first farm journal to carry a section devoted to what is now professionally known as "Apiculture".

Most of the earliest writings on beekeeping in Ontario have been collected and cross referenced by Mr. J. H. Arnott, Department of Apiculture, Ontario Agricultural College, Guelph, Ontario, who wrote a lengthy, and informative history in 1942. Mr. Arnott, while giving credit to a number of those who recorded historical and development data, does not arrive at any definite conclusion as to where beekeeping actually began in the Province of Ontario. It can, however, be fairly accurately stated that commercial beekeeping as an industry in Ontario began when the United Empire Loyalists came to the Niagara and the Bay of Quinte Districts, in the early 1800's.

My own family history, on both sides, the Allen's and the Burley's were the earliest beekeepers in Hastings County, which according to family records began about 1830, and here I might add that both families are still at it. Mr. Clare Allen has been and now is a very prominent member of the Ontario Beekeepers' Association, also a member of the Beekeepers' Council and the Honey Producers' Cooperative Society of Ontario, while his sister Bessie Allen is the manager of a large honey producing business located in Marlbank and surrounding districts, in Hastings County. As a matter of fact, beekeeping seems to be in the blood of many of our most successful beekeepers of this date, because they can trace back over the generations of beekeepers to their earliest antecedents in Canada who came from Europe as settlers.

I don't like the word "Immigrant". I like better to refer to all those courageous whites who came to Ontario to make a new life as "pioneers". Every living Canadian is deeply indebted to them for their endurance of hardship and danger in hewing out of a wilderness a place for all free men to live in peace, prosperity, and freedom. Even today many refer to Dr. Allen's treatment of various ailments with concoctions containing pure honey. Since I have made so bold as to refer to my family names and their early interest in beekeeping it would be only fair to mention some of the outstanding pioneers who contributed so much to our industry. The principal of these was of course Mr. D. A. Jones still affectionately known as the "Bee King of Ontario", who centered his activities on some of the Islands in the Georgian Bay. William McAvoy, who was the first appointed foulbrood inspector, did much for the industry. Singular tributes should also be made to Mr. William Crouse of Streetsville, Ontario, a direct descendant of the earliest beekeepers in Ontario, who has diligently searched for the earliest writings, and has contributed much to history and development of the beekeeping industry. His valuable writings are still referred to as the "Crouse Correspondence" in our Provincial Agricultural College.

Although there was no official lecturer in apiculture at the Agricultural College until 1895, and the Apiculture Department was not organized until 1908, lecturers in Apiculture were given previous to 1895 by the Reverend Wm. F. Clarke. It was partly through the efforts of Mr. Clarke that the Ontario Agricultural College came into being in 1869. The first regular lectures in apiculture were given by Mr. R. F. Holtermann, a prominent beekeeper of Brantford, Ontario, who was officially appointed lecturer in 1895. Mr. Holtermann resigned in 1899 and was succeeded by Mr. H. R. Rowsom, who continued as lecturer until 1908 when he resigned. In 1908, Mr. Morley Pettit was appointed lecturer and

Albert Edward Burley, a brother of Minnie, born 1874. Started beekeeping with his father as a boy and is still at it today keeping approximately 100 colonies in Hastings County, Ontario.

the Department of Apiculture was established. In 1909 Mr. Pettit was appointed Provincial Apiculturist, also Secretary-Treasurer of the Ontario Beekeepers' Association, under the supervision of the Department of Apiculture.

There are numerous gentlemen who have contributed much to our industry, but it would take columns to mention them all. One I would like to give special mention in my humble article is Dr. E. J. Dyce who chose very early in life to make apiculture his profession and is still at it today. He has devoted much of his life to the research and improvements in the industry as we know it today. Mention might also be made to Mr. Charles Gooderham, who started in the industry in his native Britain, and was the first Dominion Apiarist appointed in 1916. Although in retirement he is still very active in beekeeping.

The present Head of the Department of Apiculture at the Ontario Agricultural College is Professor G. F. Townsend, and the Dominion Apiculturist is Mr. C. A. Jamieson, Ph.D.

At this date there are 3,298 beekeepers in Ontario, who maintain 141,587 colonies. The production for the year 1957 is given by the Bureau of Statistics, Ottawa, as approximately thirty-two million pounds. With our fast-growing population, and with the aid of education and advertising I think we can look into the future with confidence in the growth and prosperity of our industry. It is said only fools and horses work so it is only fools who work hard and risk the many hazards of a most essential industry.

Wiped Out by Fire, California Beekeeper Back in Business

WILLIAM RUTLEDGE III, North Hollywood, Calif.

ONE YEAR after a disastrous forest fire had destroyed his property and life-long bee business, Herbert Marcks is back in beekeeping. At the age of 68, having been born and having lived all of his life on the isolated mountain top homestead by his grandfather, Marcks is again a leading beekeeper.

With the help of the Red Cross organization and his friends in Julian, California Beekeeper Marcks' Eagle Peak Ranch is flourishing again. On its 800 acres he has rebuilt his home and honey house and wax-rendering equipment.

To help finance his restoration he created a lake by impounding water running the mountain side. This lake has been stocked with catfish, blue gills, perch, and crappies. The nearby Lakeside Sportmen's Club has leased the lake and has been putting in extensive improvements.

This area boomed into life as a gold mining center. Marcks has vowed that he will spend his entire life on this picturesque mountain homestead—with his honey and money making bees.

Ancient Beekeeping

by H. E. ARDREY, Athabasca, Alberta

ANY STUDY of a past age, especially if it is remote, has its own difficulties. These become apparent when trying to evaluate early writings, where it is found, that, with the difficulty of translation, is the fact that the early writers did not mind borrowing from a fellow writer, and neither did they bother to acknowledge their debts. It is quite possible that what passes for the work of one writer, may perhaps be the work of another, while most writers seemed content to repeat anything that they heard or found written, whether fact or superstition.

The difficulty of translation can best be illustrated by a phrase from Virgil's Georgics, in reference to removing the wings from the "kings" (queens) to prevent swarming. Here is the Latin: "Nec magnus prohibere labor: tu regius ala eripe".

Here is Loeb's translation: "No hard task is it to check them. Do you tear from the monarchs their wings".

Here is Brodie's: "Nor is there great difficulty in restraining them; do you but clip the wings of their kings".

Here is Bryce's: "Nor is there great difficulty in preventing them, just disable the wings of their chiefs".

Here is Lonsdale's: "And the trouble of restraining them is not great, do but pluck away the monarchs' wings".

The Latin word that causes this seemingly confusion is "eripe" and it means to pluck, tear, snatch, pull, clip, or whatever you can think of. It must be noted that those words cannot be taken in the literal sense; they merely indicate a procedure to be followed. Had Virgil used the word "eripie" meaning, "to remove with violence" then it could be said that the wings were to be removed, that is, literally removed from the body. But the word used is "eripe", "without violence", or, to prevent flight by removing the wings without causing harm. The consensus now-a-days seems to be that the word "clip" should be used.

Just how the queens were to be caught is a point of interest. It must be borne in mind, that beekeeping in ancient days was not carried on by a number of individual beekeepers, or in a manner that we are familiar with. Bees were kept principally by landowners, who used slaves to do the work, with perhaps more than one slave to take care of the bee yard. One note of interest in passing, is the general remarks of translators on the lack of reference in ancient writings to protective covering for slaves, i.e. gloves, veils, or for that matter, clothes, and hardly any mention of bee stinging. This seems to suggest, that if the slaves were at times well stung, their reaction was not a matter of concern, and certainly not worth mentioning.

There is evidence to support the suggestion that a selection of bee strains was practiced. This would provide perhaps a quieter bee, also there was very little hive manipulation. Hive smoking was in general use with ox-dung as fuel. Didymus mentions a mixture of wild mallow juice, dried fenugreek (a leguminous plant) and oil as a remedy for bee stings, this was to be rubbed on the exposed parts. This remedy is mentioned also by Paramus. All this of course would reduce the occasion and the inconvenience of bee stings. But back to the problem of how to catch the queen in order to remove the wings.

Aristotle mentions hives with what appears to be top bars only, to which the combs were affixed. This would suggest removable tops. Pliny mentions hives with removable backs, while Columella tells of requeening and uniting, and Varro writes of drone traps. Pal-

ladius advises that "If a hive contains no brood, and is decreasing in numbers you must fix in it a ruler (queen) cell cut from another hive". All this suggests that the ancient beekeeper had access to the inside of the hive, and therefore to the queen, before swarming took place. Didymus offers the further advice that "the ruler's wings can be clipped when the swarm appears".

Superstition played its part in ancient writings, and the ex-born bee is an illustration. This appears to have originated in pre-Egyptian days, long before man had learned to record his feats in writing. Nearly all ancient writers on beekeeping, with the exception of Aristotle mention it. Among the well-known writers are Nicander, Varro, and Virgil, while Pliny goes on to say that hornets are produced from horses, and beetles from asses. Servius goes Pliny one better, he writes that "Bees are derived from oxen, drones from horses, hornets from mules, and wasps from asses". It is interesting to note that the last serious mention of ox-born bees was as late as the middle of the 19th century. A belief that has existed for so many centuries cannot be dismissed lightly as "just superstition" it is quite likely that there was good reason for it.

In assessing the value of ancient writings those of Aristotle must come first, although translaters invariably divide his writings into two parts, those of Aristotle, and pseudo-Aristotle; this would suggest a different writer. B. G. Whitfield writes "Here are a number of inaccurate statements, the result of wrong induction after accurate observation, but it is difficult to resist the impression that the author is a skilled, practical beekeeper, well aquainted with the work of Aristotle and ready to copy word for word in places".

Dr. Fraser writes "He (Aristotle) is therefore much more reliable than other classical writers who have discussed this subject, the majority of whom seem to be content to repeat, without criticising, anything which they heard or found written".

Aristotle's accuracy of observation and clarity of reasoning can best be illustrated by his observing and recording the "dance of the bees", the same discovery that was made by Von Frisch hundreds of years later.

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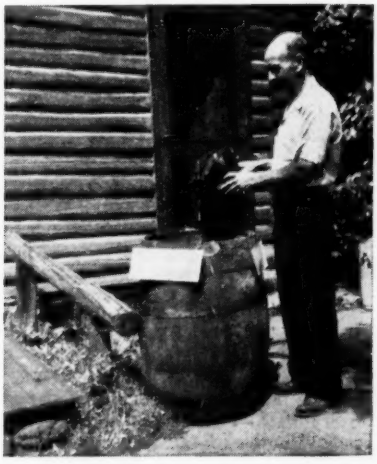
It's an Idea

MILTON STRICKER, Annandale, N. J

"To Raise Money for the American Honey Institute"

A PAINLESS way to collect money for the American Honey Institute at a bee meeting is to bring a barrell and invite beekeepers to contribute their scrap wax. This can be sent away for rendering and the secretary can remit money directly to the Institute.



XUM

A Good Beginning

MRS. BENJ. NIELSEN
Aurora, Nebraska

Honey-coated cereal, toasted currant buns and honey-sweetened coffee get us off to a good start for the day. — Photo courtesy Kellogg Company.

"BREAKFAST IS READY, come and get it!" Chances are you won't need to issue any invitation when the enticing aromas from this month's offerings waft into early morning air. Even laggards will speed up, sniff appreciatively, and query, "Gee, Mom! what's for breakfast?" There is something so distinctive and tantalizing about the aroma of these honey-way breakfasts! A sure-enough appetite prodder. Then golden brown loveliness adds eye appeal, and the first luscious bites live up to the advance advertising. All of these generously topped with butter and Nature's golden sweet, and we are liberally furnished with the quick energy to get off to a good start for the day.

Honey Currant Buns

One-half cup ready-to-eat bran cereal, ½ cup dried currants, ½ cup milk, ¼ cup honey, 2 cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, ¼ cup shortening, 1 tablespoon honey, and 1 tablespoon melted butter.

Combine bran, currants, milk and honey; let stand until most of the moisture is taken up. Sift together flour, baking powder and salt. Cut in shortening until mixture resembles coarse corn meal. Add bran honey mixture, stirring only until combined. Turn dough out on lightly floured board and knead gently a few times. Divide into 12 equal portions and shape each into a ball. Place on greased baking sheets. Flatten out to about ½-inch in thickness. Brush with mixture of honey and melted butter. Bake in hot oven, 425° F. about 15 minutes. Yield: 12 buns, 3 inches in diameter.

Honey Muffins

Two cups sifted flour, 1 teaspoon baking powder, ½ teaspoon salt, ½ teaspoon soda, 1 egg, ½ cup sour milk or buttermilk, ½ cup honey, and 2 tablespoons melted shortening.

Sift flour, baking powder, salt, and soda together. Beat egg; add milk, honey, and shortening. Add to dry ingredients, stirring only enough to dampen all the flour. Fill greased muffin pans ⅔ full and bake in hot oven, 400° F. 25 minutes. Yield: 18.

Honey Sour-Milk Griddle Cakes

One and ½ cups sifted flour, 1 teaspoon soda, ½ teaspoon salt, 2 eggs, 2 tablespoons honey, 1 cup sour milk or buttermilk, and 1 tablespoon melted shortening.

Sift dry ingredients together. Beat eggs, add honey, buttermilk, and shortening. Add to dry ingredients gradually, beating until smooth. Drop from spoon onto a hot greased griddle and cook until top is full of tiny bubbles and underside is brown. Turn and brown on other side. Yield: 18 cakes.

Honey Raisin Filling

One cup raisins, chopped, 2 tablespoons butter, ⅓ cup honey, 1 teaspoon grated lemon rind, 1 teaspoon lemon juice, and ¼ teaspoon allspice.

Cover raisins with water; boil three minutes; drain and chop. Add butter and honey; blend; add remaining ingredients; mix thoroughly. Use as filling for pancakes or griddlecakes.

Live and Learn

by Propolis Pete

SOME PEOPLE have a theory that everything is relative. Of course, there are times, especially at a family reunion, when it seems that the whole world is made up of relations. But that isn't what we are talking about. Believe it or not, we are talking about the price of honey. Take this as a for instance. We may read in the market reviews that honey producers are getting, say 13 cents a pound for their honey, F.O.B. That means that they are getting in the neighborhood of $280 a ton for their work and investment. Us backlotters figure out our production on this basis and wonder how anybody can make a living that way. Some of the big producers do too.

There are compensations, of course. The big beekeeper doesn't do things the same way that us little guys do it. It takes a lot of money to buy the equipment and space, but once that is set up honey moves through it a lot faster and with less work than it does in our little two-by-four rigs. And once the establishment is in operation, all you have to do is to figure out a way to get enough honey to keep it going.

At the other end of the road, here is something I ran across a couple of months ago. An ad in one of the nationally circulated papers, offering three half-pound jars of "specialized" honey—gift wrapped and postage prepaid to anywhere in the United States for ONLY $3.95. That works out to $5266.53½ per ton. What suckers we are for selling it for $280.00. Of course it isn't all profit. There is the gift wrapping to pay for, and the postage, but I feel inclined to say that I would be satisfied to pay those costs if I could get prices like that.

To be fair, let us remember that in such an operation, there are other expenses that the man who gets 13 cents a pound doesn't have. Take that ad for instance. In a paper with such a big circulation, the rate per line for a one inch ad uses up a lot of honey, even at $2.60 a pound. This kind of honey is for people who buy luxury goods and are willing to pay a premium for prestige and packing. Something like the people who buy these fancy perfumes that cost a nickel a gallon to produce, but which sell for dollars per ounce in a bottle that cost a couple of bucks just for the bottle.

What started me off on this sermon? I guess it was the fact that I am experimenting with different ways of selling my crop. I like the idea of meeting people, as you do when you sell honey through the kitchen door, but if only these people would come at the right times. They come when I am not home, and that makes them mad. They come at mealtime, and that makes me mad. I don't mean friends or neighbors. They can come in and join us. I mean the strangers who come at mealtimes, and expect an hour's lecture for the price of a pound of honey.

The roadside fruit stands seem to be the best bet for me. These, and church fairs and sales. The stands get the usual discounts. The churches get the same discount, plus some one-pounders as a donation to be sold. One such fair last fall sold nearly a hundred dollars worth of honey at retail.

I have tried some other "off-beat" outlets too, such as garages, gift shoppes or variety stores selling dry goods and so forth. The theory here is that my honey won't have competition from other syrups or honeys. With one exception, such connections have not panned out too well. I have tried grocery stores, but don't get very far with them. For one thing the grocer man has a lot more on his mind than selling my honey. Also his shelf space is valuable, and unless you want to make a "special" he can't give up too much of it. Also most grocers have to keep on the right side of their wholesalers and buy a regular commercial brand as well as yours. Furthermore the old corner grocer is rapidly giving way to the supermarket which sells what headquarters tells it to sell. Also, there are an awful lot of people who buy on a price basis only, and us little guys can

(Continued on page 123)

Editorials

Soil Bank Situation — Its Effect on Beekeeping

WE LEARN from an authoritative source that the Federal soil bank idea is not favored by the rank and file of farmers throughout the country. This may result in a repeal of soil bank legislation during the coming session of Congress.

Agricultural Department experts believe that the farmer can make more money by idling his land and receiving a Federal rental for it than he can by farming that same land. However, many farmers are planting their land and taking their chances.

At present the Agricultural Department is trying an experiment in at least four of our states, for farmers to put entire farms into a long-term conservation reserve. It is thought that if Congress kills the soil bank the Administration may ask Congress to create a conservation reserve for the purpose of idling 50 million acres. The owners of land taken out of production would collect an annual rental of $20.00 an acre.

It would appear that land taken out of production of grains would grow up to clovers, weeds, and other plants, some of which would supply bees with nectar and pollen. We would say, although we can't be sure about it, that the long-term conservation reserve would benefit beekeepers. Time will tell.

Canadian Honey Crop in 1957

ACCORDING TO the Dominion Bureau of Statistics, Ottawa, Canada, as of December 18, 1957, the estimated honey crop for Canada is 31.4 million pounds, which is 29 per cent above the 1956 crop. This is slightly higher than the 1946-1955 average of 30.9 million pounds.

The average yield for all of the provinces was 97 pounds per colony, an increase of 31 per cent over 1956. The province having the highest per colony average was Saskatchewan with 141 pounds.

Beekeepers' Associations Must Have Worthy Objectives

ONE REASON some beekeepers' associations fall by the wayside is that their objectives are not worthy and clear-cut. It would seem that each association should have a carefully formed constitution and at least try to live up to it.

About 30 years ago Medina County, Ohio was badly polluted with American foulbrood. At that time we had adopted the burning method and each season found us destroying a considerable amount of honey, wax, bees, and beekeeping material. Something had to be done about it. We decided to form a county beekeepers' association, primarily for the purpose of cooperating with the State Bee Inspector and his duties in combating foulbrood that had become so prevalent.

Our county has 17 townships and a key man was appointed for each township to keep a record of the number of apiaries and where they were located. This key man would help the bee inspector locate all apiaries in his township and would work with him. When the inspection was finished in one township, the inspector would be turned over to the key man of the adjoining township. By inspecting all of the apiaries thoroughly and re-checking the following year, the disease was eventually reduced down to a very low percentage and the county has remained comparatively clean since that time.

So long as our objective was uppermost in the minds of beekeepers the interest in our Association continued. When our objective was reached, interest began to lag. To sustain membership interest it is essential that new objectives be set up from time to time.

An objective for associations could well be, disseminating useful information concerning honey as a food, also the value of honeybees for pollinating farm crops. If beekeepers in an association would make it a point to contact farmers and fruit growers concerning the value of bees for pollination, some worthwhile information could be disseminated. If beekeepers who really believe in and use honey on their tables regularly, would become enthused about the value of honey as a food and would talk honey and bees at service clubs, schools, and church gatherings, the interest in bees and honey would increase and the per capita consumption of honey would be raised..

Beekeepers' associations can render a service to our industry if they maintain and reach worthy objectives.

Let's Stop Leaks in Beekeeping

SPEAKING OF LEAKS, we are reminded of the man who had a leak in the roof of his dwelling house. When asked why he didn't fix it he said, "When the sun shines, the leak does no harm, and when it rains I can't fix it".

Someone has said that a slow leak will eventually sink a ship. One or more leaks in a business, including beekeeping, may eventually sink it. Some of us may be conscious of some leaks in our beekeeping activities but fail to do anything about them. It is easy to move along the line of least resistance. We are reminded of the truth uttered by the immortal Shakespeare, "If to do were as easy as to know what to do, chapels had been churches and poor men's cottages princes' palaces".

During the years, we, as a nation, have been prodigal of our resources; there have been too many leaks. The time has come when we have to stop up some of the leaks to avoid disaster.

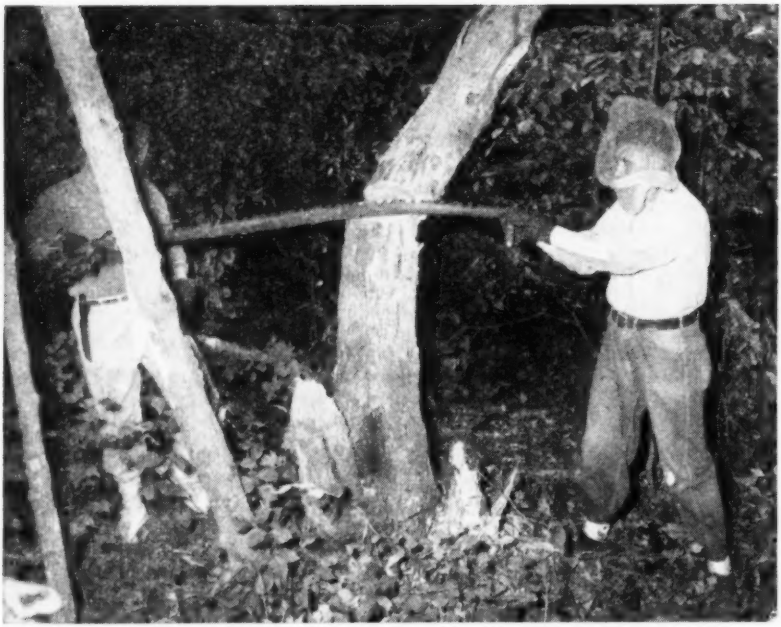
A recent issue of Reader's Digest carried an article, "Road to Survival". The writer says that each day of the year, two 140-acre farms are washed down "Old Man River" by erosion. We are actually beginning to do something about the erosion problem, which, by the way, affects beekeeping.

One way to avoid leaks in apiary management is to adopt a method of handling supers and manipulating hives to avoid waste and duplication of effort. In operating out-apiaries be sure to make each trip count for the most. In the spring, instead of driving to an out-yard with an empty truck, why not take along some supers. If they are not needed that day, pile them up (mouse proof) at the side of the yard so they are available when needed.

It costs money to operate a truck. Let us suppose an apiary 75 miles from home is being visited and that the beekeeper is taking along one or two helpers. The men are drawing their pay while travelling to and from the apiary, even though they are doing no work and enjoying the scenery en route. However, if the amount of surplus honey secured at the out-apiary is enough more than what the colonies would produce at home, to more than pay for the extra expense involved, all well and good.

All beekeepers, whether they operate a few colonies or a large number commercially, can and should stop up leaks in their methods of management in order to realize a living margin of profit.

NEWS



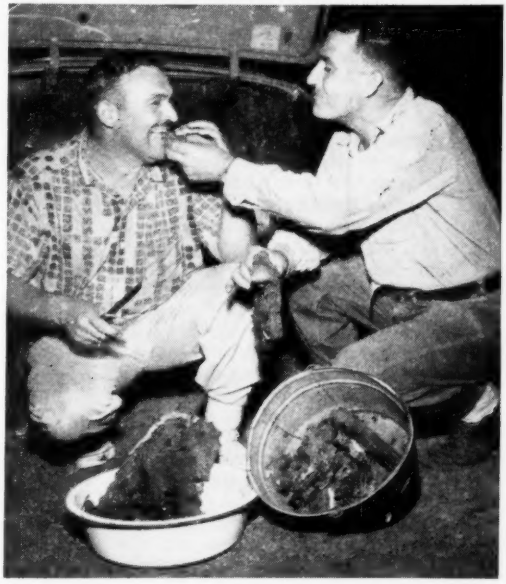
Bee Hunting Proves Fascinating Hobby

Ezra Clark, left, and Elwin Brammer found a swarm of bees in this dead oak tree in Lawrence County Ohio. They felled the tree in order to get at the swarm and the honeycomb. A single bee, seeking water almost a mile away led the men to the tree and the swarm. — WIDE WORLD PHOTO.

Brammer, who lives on Greasy Ridge near Chesapeake, tears away the tree stump to get at the honeycomb after most of the bees have swarmed into the beehive.—WIDE WORLD PHOTO.

REEL

Clark, a Huntington resident and C & O yard brakeman, smokes the bees from their comb in the tree stump. The bees swarm to their new home in the beehive, since the queen bee has been placed there to lure the drones and workers from their former nesting place. Both Clark and Brammer are well protected against the sting of the bees.— WIDE WORLD PHOTO.



The men enjoy the "fruits" of their labor in the form of fresh honey. This particular evening's work netted approximately 25 lbs. of honey. Both men hunt and keep bees as a hobby. — WIDE WORLD PHOTO.

FROM Foreign LANDS

Translated and Edited by Erika Barth

Nutritive Value of Pollen:

WE HAVE KNOWN for a long time that the bees rid themselves in the hive of balls of pollen which they have brought back in the pockets of their hind legs on returning from their expeditions in the fie'd and that they utilize these to nourish their larvae in addition to honey.

The Station of Apiary Research of Bures-sur-Yvette, which is a division of the National Institute of Agronomic Research directed by Remy Chauvin, has just made interesting researches on the nutritive value of pollen. Pollen is the nitrogen-containing food of the hive. A large hive of 80,000 bees consumes yearly, in addition to 100 kg. of nectar utilized for fabrications of honey, 60 to 80 kg. of pollen which serves as nourishment for the brood.

Since the bees bring in and accumulate much more pollen than is necessary, one can easily remove a part in order to study the composition and its hyperconcentrated food value. We know, through chemical analysis, what are the particular essentials of pollen, its richness in proteins and in free amino acids on one hand, and vitamin B (complex) on the other.

Pollen contains a certain quantity of sugar, lipids, enzymes, pigments, hormones, and of histamine in the pollen of rye and corn.

In experimenting on mice, they have seen that these little rodents develop more rapidly when one introduces a little pollen in their feed. It seems that this action is due to a certain factor of growth and efficiency which is incorporated in the pollen by the diastases which the bees add to it.

Moreover they have remarked that the droppings of the mice thus nourished contain practically no bacteria, which confirms the idea transmitted for generations that honey and pollen are disinfecting and healing substances. The pollen of hives contains antibiotic substances.

The pollen seems to act on intestinal functions and seems to be a superfortifying substance bringing about a rapid augmentation of the weight and of the strength of infants and in convalescents on which it has been tried.

Presse med. 65:1810. 1957.

Dr. Eckert in Australia:

ACCORDING TO a report in the AUSTRALASIAN BEEKEEPER, Dr. J. E. Eckert, who is investigating and studying bees and beekeeping affairs in Australia under a Fulbright Scholarship, visited the offices and factory of Pender Brothers, bee supply manufacturers. Prof. Eckert toured Victoria with his wife as a guest of a number of members of the Victorian Apiarists' Association. Later they visited apiaries and packing p'ants and gave talks at bee meetings.

Dr. Eckert expects to be continuing his studies at the Waite Institute until next March when he will have a few days in Western Australia prior to returning to the U.S.A.

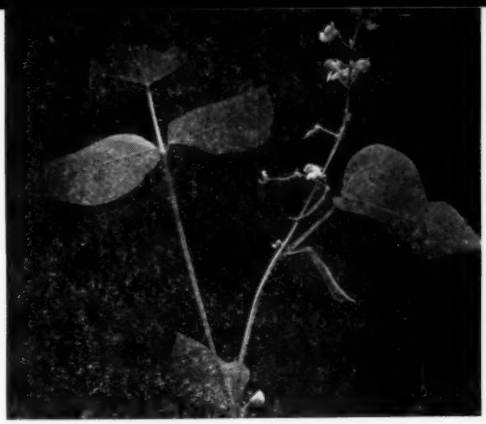
The Australasian Beekeeper. Nov. 15, 1957.

Our Cover Photo

PART OF a Root Company apiary during the dead of winter. Amply protected from the cold wintry blasts, the colonies are clustered snugly on combs which we hope contain an ample amount of honey for winter stores.—Photo by John Buchanan.

Let's Talk about Honey Plants

HARVEY B. LOVELL, University of Louisville
Louisville, Kentucky



Lima bean
(Phaseolus limensis)

Virginia. My request for information on the possible source of a honey sent me by Odell F. Burch of Chincoteaque in the December GLEANINGS brought the following reply from inspector Harold L. Kelly of Silver Springs, Maryland: "In my work with bees I have made numerous trips to the eastern shore of Maryland and Virginia and am somewhat familiar with the honey sources of that area. From the southern part of Delaware on down to Cape Charles, Virginia, there are spots where a large acreage of lima beans are grown for canning factories and freezing plants. Maryland beekeepers migrate into that area to obtain the lima bean honey which is usually available from the middle of July until frost. Plantings are successive so the honey flow is long.

"I have never been on Chincoteague Island so do not know if there are any farms there, but as this island is immediately off a part of the main land where lima bean is abundant, it is possible that there are also some over there.

"**Soya bean** is also grown on the Eastern Shore and in a much greater acreage than lima bean but has not been considered a honey source. However, this past October, while inspecting bees around Salisbury, Maryland, the hives there had good crops of a very light honey that was very similar to lima bean honey. The local beekeepers insisted it was from soya beans. They claimed there was no lima bean acreage in that particular area and that they had observed their bees working soya bean vigorously."

Lima Bean Honey. Mr. Kelly sent me a sample of lima bean honey which he harvested only 15 miles from Cape Charles, Virginia. It is an excellent, nearly white honey and I am most happy to receive this sample, but it is several shades darker than the unknown sample from Chincoteague. The latter is as white as water with a different flavor.

Mr. Kelly continues in his interesting letter, "If soya bean did yield this year, it is possible that it was one of those rare instances when climatic conditions were just right to make a plant, not normally a honey source, yield nectar. Often I have seen bees in soya bean fields. . . .but never did they store anything from this source." If anyone reading this has obtained honey from soya beans, please write me.

Smartweed Honey Again. Mr. R. D. Rollins of Rankin, Illinois, comes to the defense of the much maligned smartweed or heart's-ease honey. He writes me that he prefers it for his own use to other kinds because it does not bite one's throat like that from sweet clover and he can drink it while extracting it. He adds, "For my own use I would not give one pound of smartweed honey for two pounds of sweet clover or Spanish needle honey." He further states that he has some customers who won't buy any other kind but sometimes he cannot extract it white enough to suit them. The color seems to vary from white to amber depending upon soil conditions and the rate of secretion. It is fortunate for the honey business that different people

(Continued on page 125)

Highlights of the 68th Annual Convention of the California State Beekeeper's Association

ELBERT R. JAYCOX, Supervisor of Apiary Inspection, California Department of Agriculture

THE CALIFORNIA beekeepers convened for their annual meeting at Stockton, Dec. 2 to 5, 1957. One hundred eighty people registered officially with a total attendance of about 250. Most were from California but others seen at the meeting were Ken Bradshaw, Idaho; Allen Luce, Hawaii; Robert Asher, Alberta, Canada; Frank Todd and Dr. Lonnie Standifer, Arizona; and Floyd Hilbig, Nevada.

The group was welcomed to Stockton and San Joaquin County by State Senator Alan Short who suggested that each beekeeper should get acquainted with his legislators so that his interests will receive consideration.

In his presidential address, Charles A. Johnson, Empire, stressed cooperation and compromise as the keys to solving industry problems. These have been responsible for our progress in reducing losses from pesticides, in improving sanitation of extracting plants and in meeting the challenge of commercial pollination. He believes that we can handle present problems in the same way.

Dr. Harry H. Laidlaw, Jr. University of California, Davis, reviewed the history of the University's breeding program and outlined plans for the future. Next year the California bee breeders will sell breeder queens from crosses of some of the 18 inbred lines produced by Dr. Laidlaw. The development of new improved stock will be discontinued by the University in 1958. Dr. Laidlaw will devote his research time to studies on the genetics of honeybees and bee breeding. This has been made necessary by lack of help, both at the University and by the industry.

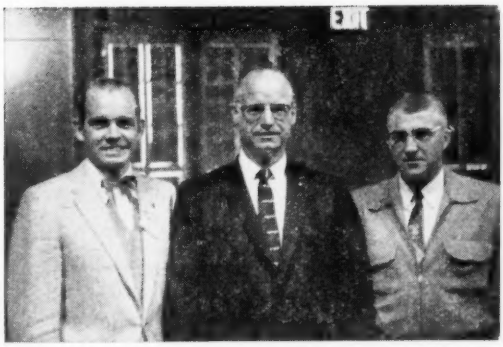
Farm Advisor E. E. Stevenson, Modesto, moderated a well-rounded panel discussion of the problems and research relating to spotted alfalfa aphid. Research on insect populations in alfalfa fields was presented by Dr. Ray Smith, University of California, Berkeley, who pointed out that aphid populations vary according to the relative numbers of aphids and predators. Pesticides upset the balance of numbers, which should be maintained if possible. Demeton (Systox) does less damage to lady bird beetles and parasites than some other materials and is recommended for control of aphids.

Dr. E. Laurence Atkins, University of California, Riverside, reviewed toxicity studies of insecticides to honeybees in seed alfalfa fields. Cooperative tests in which he participated showed that Dipterex was less toxic to bees than Trithion and much less toxic than parathion. Malathion was usually less toxic than parathion but more so than Trithion. Phosdrin at low dosages killed field bees, predators and parasites without killing aphids. When applied at eight ounces per acre, it killed caged bees which were sprayed over but did not kill caged bees placed in the field after application, but bees continued to die at the hive longer than expected.

Biological control of spotted alfalfa aphids by native and imported parasites and predators is operating effectively in California. Dr. Kenneth Hagen, University of California, Berkeley, showed colored slides and described some of the insects responsible for biological control of aphids.

The beekeepers were given a good opportunity to hear problems inherent in the development of agricultural chemicals while listening to Dr. Roy Hansberry of Shell Development Company Laboratory at Salida. He envisioned cheaper and more effective chemicals in the future but emphasized that more toxic materials can never take the place of good husbandry.

Queen rearing and introduction were presented by Jack Shackelford, Rio Oso, and Charles Scott, Santa Ana. Both men stressed the value of "banking" queens when they must be held before shipment or introduction. Scott stated that he has improved his acceptance and production by routinely feed-



Left to right: Robert St. John, Vice-President; J. Allen Dyer, President; C. W. Beekman, Secretary-Treasurer, of the California State Beekeepers' Association.

ing the antibiotic fumagillin. His returns have been four times as great as the expense of the treatment.

Mr. Frank E. Todd and Dr. Lonnie N. Standifer, U.S.D.A., Tucson, described the search for effective pollen substitutes and other work being carried on at the Tucson laboratory. Several materials show promise, including a residue from the production of penicillin. In other work, colonies of bees in full shade produced 40 pounds more honey than those in full sun or even those shaded by a lath roof.

At the business meeting the Association referred the proposed revision of the apiary laws back to the legislative committee until the report of the hearings on other apiary legislation is received. Resolutions were passed (1) requesting the establishment of a U.S.D.A. laboratory in California for studying pollination; (2) recommending the re-establishment of an export subsidy on honey; (3) requesting establishment of a honey import quota based on imports of the last ten years, and (4) requesting an increase in honey support prices with the same price level throughout the United States.

New officers elected at Stockton are: J. Allen Dyer, Yorba Linda, president, Robert St. John, Ripon, vice president, C. W. Beekman, Hughson, secretary-treasurer, and H. J. Crawford, Fullerton, assistant secretary.

A Good Place to Keep Bees

S. SCHOUTEN, Germantown, Md.

I HAD MY beehives on a friend's property. One day he told me that he had sold his place and that I would have to move my hives from his property before January 1, 1958.

Since I live in an apartment in a little town in Maryland it would not be possible to put my six beehives in my windows. I wanted a place where my bees could find a good nectar source, so I headed straight to the man in charge of Montgomery County State Game Refuge, Mr. Brandenburg.

I asked him if he would like to have bees in the Game Refuge and if he would help me get permission from Baltimore headquarters to put my bees there. He told me he would like very much to have my bees there for pollination of the several clover, alfalfa, lespedeza, and other fields. He suggested I come back in a few days so that he could ask the office in Baltimore. After I came back he said that it was all right and that I didn't need a written permit.

They made only one condition and that was to put my six colonies in two different places. So two weeks ago I moved in and have my hives in two nice wind-protected places with hundreds of acres of woods, wild flowers, goldenrod, and honey-yielding seed fields with some water streams nearby. I am very anxious to see how well my bees do next year.

Reflections of a Beekeeper

MARVIN W. KOSANKE, Ripon, Wis.

Mr. Kosanke examining hives of bees in his orchard apiary.

EVERY NOW and then we are reminded not to forget the poetry in beekeeping. And yet I wonder how many of us do this very thing. Nearly all of us have become so deeply entrenched in this complicated business of making a living that we fail to enjoy the many things Mother Nature has provided for us. It is a great privilege to follow a profession that is in constant contact with her throughout the year. To learn her secrets and to know her ways is one of man's greatest pleasures. Our work should always be a pleasure as well as a means to provide a livelihood. When our work becomes a burden and we receive little or no pleasure from it our life is not much worthwhile.

We should be more appreciative of all the living things about us in the great outdoors and learn to enjoy them to the utmost with our beekeeping. Such ordinary things as a hawk circling majestically overhead, ever relentlessly searching out its prey, a frisky chipmunk scampering through the fallen leaves to his sanctuary in a hollow tree or a thrush flitting by to his nest in a nearby thicket, all may seem commonplace or insignificant. However, everyone of them brings some form of pleasure to anyone who stops to observe them for a moment.

Too many people measure a successful man by the money or property he has accumulated during his lifetime but there is a far greater richness that is acquired by being close to Nature. By understanding and having a greater affinity to her ways in conjunction with our work gives us an opportunity to live a more contented life than we would have otherwise.

Perhaps the most pleasant place to enjoy beekeeping is to have an apiary in an orchard. I wonder how many beekeepers have taken the opportunity to spend an hour or so on a warm sunny spring day when the fruit trees are in bloom. An apiary of meticulously painted hives placed on a luxuriant

carpet of grass under a group of blossoming trees is a sight to behold. Sitting in the warm sunshine watching the bees bringing in the precious pollen and nectar and with the air filled by their pleasant hum and the enchanting fragrance of the blossoms is an occasion that is unforgetable. It has to be experienced personally to be fully appreciated and can never be expressed by mere words.

Summer Has Its Compensations Too.

To be sure, spring alone does not hold all of the pleasant moments. When working in an apiary during the hot summer days what is more restful than to spend a few moments in the welcome shade of a nearby tree? Watching the bees come flying in from all directions with their heavy loads seems to relieve one of all his weariness. The air seems alive with their seemingly endless hum and activity. There is no time for rest for there is much to be done and soon the days of summer will pass and autumn will be with us again.

Next to spring the bright warm days of autumn are most enjoyable for that is the time when the bees have finished their work and fly lazily about the hives on the beautiful sunny days. They seem to have a feeling of self-satisfaction after having completed a season of fruitful labor. As you stand near the hives this same feeling of contentment seems to envelope you also. In addition, this same feeling of satisfaction is enriched by the beauty of the surrounding countryside now. The brilliant foliage of the trees against a background of a bright blue sky flecked with billowing white clouds presents a challenge to the most talented of artists. These are days that alone seem to make life worthwhile.

But all too soon autumn gives way to winter. This is the time of year when most of the earth seems to be asleep. Many of the birds have long ago winged their way south. Only a few of the hardiest remain. A beautiful blanket of white covers the ground. On a clear sunny day the snow sparkles in the sunshine as if countless numbers of diamonds were strewn on the ground. As one walks past the hives only a raucous call of a jay in a distant tree disturbs the cathedral-like quiet about you. But as you turn to walk back home through crisp cold air your thoughts drift to the coming of spring, for it is with the coming of spring that gives us expectation and renewed hope. We always live in hope and that is where our faith lies for better things and a better life in the future.

A Fresh-air Swarm

J. R. JONES, Darien, Conn.

THIS picture was taken in November in Darien, Conn. The swarm was fairly populous at the time and they appeared to be hybrids. To salvage or save them from the elements would appear a well-nigh impossible task at this time of the year, intertwined in the bush as they are. The unique protective construction of the comb against rain and wind had already brought them through several periods of cold snowy weather and hard rains.

[It is doubtful if the bees will live until spring. Please let us know if they do. Some outside swarms farther South do live but swarms on limbs in your latitude usually die during the winter.—Ed.]

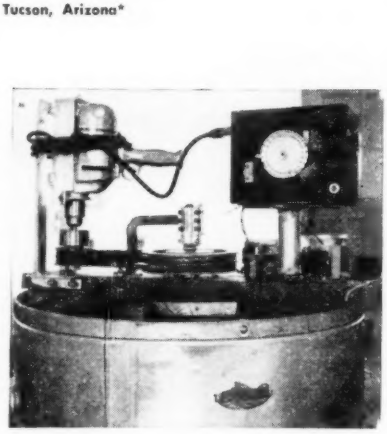
Automatic Control for Reversible Extractor

used by C. D. OWENS, Tucson, Arizona*

THE DEVELOPMENT of an automatic unit for the radial-type extractor by agricultural engineers of the U. S. Department of Agriculture was published in 1954 in this magazine. Now an automatic unit for the reversible basket-type extractor has been made. This mechanization will modernize all of the present extractors to a push-button operation when adopted.

The reversible basket-type extractor, as made, has a hand-operated brake for reversing the baskets. The time interval between reversals is so short that the operator has little time to do other jobs. Now all that is required of the operator is to start the automatic unit and it takes over the rest of the cycle. One major modification required in the extractor was a hole in the center of the shaft from the top to the under side of the reel. This was necessary in order to get electric power to a basket-positioning switch. Slip rings are mounted on top of the shaft to transmit electric power to the positioning switch. Two solenoids mounted opposite each other are fastened to a modified brake handle. One pulls to tighten the reversing brake band and the other pulls the stopping brake. As the solenoids are limited to length of stroke it was necessary to install individual adjustments on each brake band. A timing mechanism actuates micro-switches that are connected to the solenoids. The locations of the pins in the clock dial determine the time between the number of reversals per cycle. The cycle can be changed readily as all pins are threaded into the dial. Whatever the length of the extracting cycle is, the clock will continue to its starting position. Therefore, every cycle will be the same and the clock period is made to cover the maximum cycle.

This mechanism can be used with the conventional friction drive. But with a gear-reduction motor a compact belt drive can be had which eliminates a source of trouble and contamination. The extracting cycle is performed as follows: The push on a button starts the cycle by closing a relay to the extractor motor and to the clock motor; from there on, the pins in the clock dial actuate the switches at the desired time; when the extracting cycle is completed, a pin actuates the stopping switch that opens the relay to stop the motor and close the braking solenoid to stop the reel; the clock moves to its original starting position and the cycle is ready to repeat. The placement of combs in the extractor, the pushing of a button, and the removal of the combs after extracting are now the functions performed by the operator.



A close up of the mechanism necessary to operate the automatic control for extractor.

This automatic unit was placed on a commercial honey producer's machine and after some changes in construction were made for durability, it worked satisfactorily. The manufacturer of the reversible-basket extractor has taken this principle to develop a commercial unit adaptable to the present machines.

* Agricultural Engineering Research Division, Agricultural Research Service, USDA.

The advantages of an automatic extractor are that the time in extracting may be reduced, there is less comb breakage, and more uniform extraction of honey. Once the time cycle has been determined and placed upon the clock dial, all extractions will be performed efficiently. Extracting time is saved because all operations are done at the proper intervals and do not depend upon an operator's guess as to the time for reversing or changing speed. Man-hours are saved because the operator can do other work uninterrupted during extractor operation.

If operations are undertaken too quickly, especially with a radial extractor, comb breakage will result. A properly timed cycle will reduce this cause of breakage. The combs will be extracted completely in a minimum of time and short runs will be eliminated which are caused by the operator overestimating the time. It has been found that one cycle setting can be used during a period of extraction as the honey varies only slightly during that time. Changes in cycle may be needed at different extracting periods due to existing extracting temperatures and to a different source of honey. The change can be accomplished in less than a minute and with a little experience the operator can determine the cycle by a single run or predetermine it.

The conversion of the present extractors to automatic operation will result in a saving of labor and an improvement in the efficiency of honey extraction.

A CONFUSING SITUATION

W. K. DAVIS, Providence, R. I.

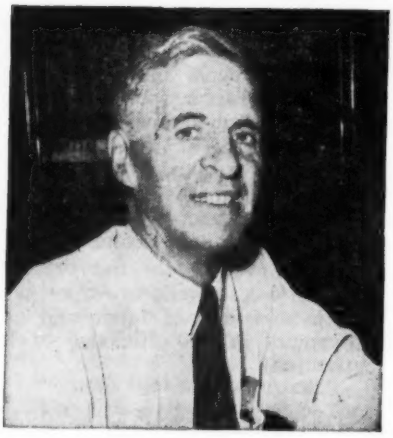
HAVE YOU ever tried to diagnose a condition in a particular colony and find that you are at a total loss to understand such condition upon first investigation? Well, this happened to me a while back. Since my apiary is located adjacent to my home I have the opportunity to observe the bees regularly. This particular day I noticed a number of old worn-out shiny bees fluttering around on the ground and many had recently died. First thought was Nosema but this isn't a normal condition during the month of July so my next thought was that this colony had come down with paralysis as the bees didn't appear to have enough strength to fly. The peculiar thing was that my colonies are requeened regularly and the stock I maintain are nicely marked bees. It certainly surprised me to see so many odd-looking bees in the hive and they appeared to be disseminated throughout the colony.

I decided to kill off the queen, which I did, and immediately sent for a replacement. When the queen arrived, naturally I sought out queen cells which should have been built by the bees during the period it had been queenless. I searched the colony for these queen cells and found none, but I did find a number of newly laid eggs, which again left me agog. I now realized that there was a second queen somewhere in the hive so I inspected the combs in the area of the newly laid eggs and found another good-sized queen but much darker than my own original queen. I killed this queen off and introduced the new one purchased.

During the middle of July I had a guest from Canada and he told me that while down on the avenue he had observed a swarm of bees milling around and he watched them go down the avenue. I gave it little thought and at the time figured that he was pulling my leg. Then it dawned on me what had actually happened. Somehow this queen and the swarm had gotten into the hive without the two factions fighting it out. The colony was a strong one so it is just one of those freakish situations. Now the new queen's brood has hatched and the young bees are disposing of these peculiar looking bees in good shape and the colony is again taking on a normal appearance.

A Talk to Beekeepers

M. J. Deyell



M. J. Deyell

IN WRITING these talks there is danger of becoming too repetitious. However, it would seem that certain principles in connection with managing bees should be emphasized year after year, especially for the benefit of new readers and beginners in beekeeping.

Also, there should be some continuity in our method of supplying this information from month to month. In the January talk I mentioned the best way to learn beekeeping and tried to suggest some ways of actually beginning beekeeping in order to be successful.

In this talk I wish to emphasize the importance of becoming more familiar with bee behavior and if there is space, I will point out a few essentials on installing packages of bees in hives.

The Bees That Wouldn't Stay Put

Some years ago my uncle out in the country captured a swarm and placed the hive on a block of wood at the side of his wood pile. The swarm built up into a populous colony. My uncle called up one day and said he intended to move the hive of bees from the wood pile to a location under an apple tree nearby. When I told him some of the bees would likely go back to the block of wood, after being moved a short distance he just laughed. He did move the bees to the new location and the following day he called up and said that those fool bees wouldn't stay put but were clustered on the block of wood. He had to learn the hard way.

Now, if he had removed the block of wood on which the hive formerly stood and if he had placed some sticks or similar objects loosely over the entrance of the hive, the bees when leaving the hive to take their first flight from the new location, would have noticed the new environment and reoriented themselves. The few bees that drifted back to the original location would have circled around until they eventually found their new location. Bees, like humans, are creatures of habit. When moving bees a short distance, it is possible to move the hive a few feet each day until it is on the new location.

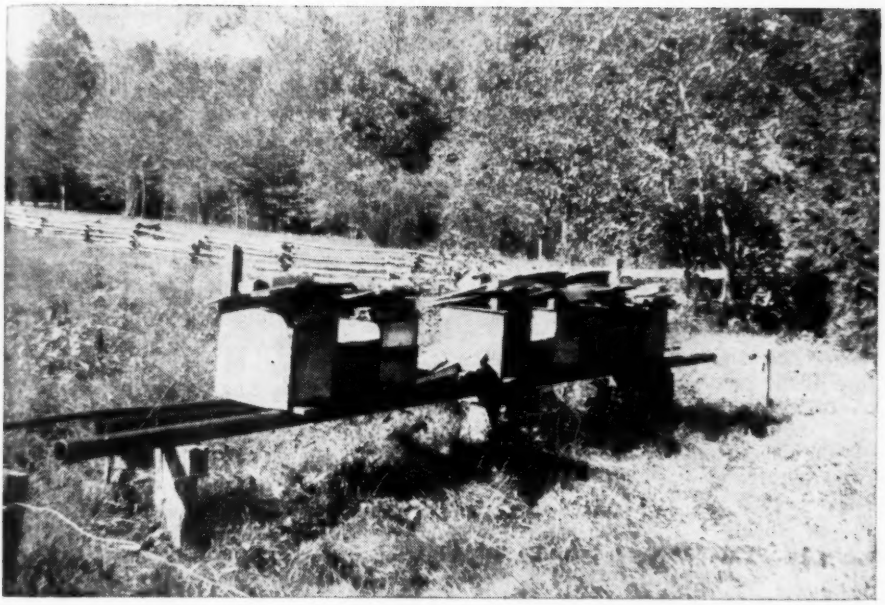
Some beekeepers seem to think they can force bees to do things they want them to do. As a matter of fact, we cannot make bees do anything they don't want to do but we can help to make it possible for bees to do what they do naturally. This, by the way, is what may be called good apiary management.

Some beginners just happen to do the right thing at the right time. Others do the wrong thing at the wrong time, then wonder why they do not secure surplus honey.

Beekeepers, especially beginners, should do some thinking about what should be done in the way of hive manipulation, in order to secure surplus honey, then they would make more rapid progress in beekeeping.

Honeybees need at least three things, a home in which to live, furniture for the home, and an ample amount of food — honey and pollen. If any of these requirements are lacking during the season, bees cannot store the maximum crop of honey.

Before elaborating on these three essentials, it should be said that nectar must be available in honey plants in order that bees may store surplus hon-



A box hive apiary in the mountains of North Carolina.—Photo by Jack Deyell.

ey, also atmospheric conditions must be favorable for nectar secretion.

The beekeeper has no control over the weather or the secretion of nectar but he can apply intelligent apiary management, thus doing his part to secure surplus honey.

The Home of the Bees

For many thousands of years bees lived in hollow trees or crevices of rocks and during the latter years in spaces between the sidings of buildings. Bees, when left alone in their natural habitats, seem to get along quite well. At least, they are likely to have an ample amount of honey at the close of each season, which cannot be said of some bees kept in modern, movable-frame hives. The owners want all the surplus honey they can get and in some instances remove some of the honey bees should have for winter stores.

When bees in a bee tree or building have their combs well filled with brood and honey, they send off swarms which consist mainly of the old bees and the old queens. The bees that are left soon have young laying queens and if swarming occurs reasonably early in the season, the bees that are left build up into populous colonies to go into winter.

It would be interesting to actually know how many swarms there are in the United States that occupy buildings and trees. Such swarms do perform a service in pollinating farm crops, fruits, vegetables, and legumes in areas where colonies in modern hives are not sufficiently plentiful to perform the necessary pollination service.

L. L. Langstroth invented the modern movable frame hive in 1851, a little over a hundred years ago. Prior to that time, bees were kept in box hives and log drums. About that time Moses Quinby developed a system of beekeeping using the box hive. Auger holes were bored in the top of the hive and in some instances earthen crocks or similar containers were inverted over the holes, so that the bees could store honey in these containers.

The invention of the movable-frame hive ushered in a new era in beekeeping and helped to revolutionize our beekeeping industry.

It is interesting to note that the two great leaders in beekeeping, Langstroth and Quinby, each wrote a book about the same time and neither one knew that the other was writing his book.

The importance of having correct bee spacing between and around the frames in a hive is very essential. Some beekeepers who attempt to build their own hives do not take time to look into this matter. The correct bee space is 5/16 of an inch.

Food for Bees Very Essential

Reference has been made to the furniture of the hive. This, of course, consists of frames into which sheets of comb foundation are placed in order that the bees may build combs for brood rearing, also for the storage of surplus honey.

When sheets of comb foundation were first manufactured, some beekeepers used one-inch starters instead of full sheets in frames. At the present time, most beekeepers use full sheets of foundation because this helps to insure having the maximum amount of worker cells instead of drone cells in combs.

Some years ago I lived near a beekeeper who used half sheets of foundation in brood chambers. He was older than I was and I hesitated to call his attention to the importance of using full sheets of foundation. During the height of the honey season I occasionally paid him a visit. He had 80 colonies in one yard. As I approached the yard, I could hear swarms of drones out taking their flights. When we examined the brood chambers, we found the lower halves of the brood combs almost solid drone comb.

This beekeeper used to pay me a visit occasionally and watched me put in full sheets of worker foundation. In a short time he was using full sheets. Apparently, he had become conscious of the mistake he had been making.

It seems impossible to have combs in brood chambers that are 100 per cent worker cells. Some authorities say that regardless of using full sheets of foundation, eventually approximately 10 per cent of the cells in a brood chamber will be drone cells. The late Mel Pritchard who reared queen bees for the Root Company for almost 30 years said that if he were producing honey he would have one comb of drone brood foundation in each colony so that the queen could use that comb for laying unfertile eggs. I rather think Mr. Pritchard had something.

By the way, if you wish to obtain a solid comb of drone cells, place an empty frame from which the comb has been cut, into the center of a super during a good honey flow.

Bees Need Comb Space

This simply means providing strong colonies of bees with ample comb space for the storage of incoming nectar. This means putting on supers when needed, in fact, a little in advance of the time they are needed, especially during a heavy honey flow. These three major requirements then, properly constructed hives, an abundance of food, honey and pollen, and ample comb space, are very essential in obtaining the largest possible crops of surplus honey.

Further Word about Bee Behavior

Learning about bee behavior is an endless study. A considerable amount of the knowledge we have today concerning the behavior of bees was passed on to us by the blind naturalist, Francois Huber, a little over 200 years ago. He conducted many experiments through the eyes of his wife and faithful servant. See page 593 of the October 1957 Gleanings, the article entitled "The Impossible Career" by Ann S. Fisher.

When we know approximately how many eggs a queen bee lays in a day, how long it takes for the development of a worker bee from an egg, how long worker bees live during the height of the season, how long the average bee lives, and how colonies of bees winter in cold climates and other essential information concerning the honeybee, we are then in a position to carry on our beekeeping activities more intelligently. The beginner beekeeper can find this information in bee books that are now available and advertised in the bee journals. The bee journals contain articles on these subjects from time to time.

A Word about Package Bees

Packages are shipped from the South during the spring months and are used

to establish new apiaries, to replace winter losses, and queenless packages are used to strengthen weak colonies.

Packages should be received and installed at least six or eight weeks before the beginning of the major honey flow in your locality. This gives the queens time to provide at least two cycles of brood.

Packages should be ordered in ample time so that they may be delivered when the beekeeper wishes to install them in hives.

Before the bees arrive, the beekeeper should have hives assembled and in readiness for the packages. Hives containing frames with full sheets of foundation should be placed on stands at least six or eight feet apart so that the bees, after they are put into the hives, may not drift from one hive to the other.

If the weather is cold when the packages are received, they should be placed in a room of moderate temperature and kept there until the weather is warm enough to put the bees into hives. In the meantime, the bees should be fed warm sugar syrup consisting of equal parts of granulated sugar and water. The syrup may be sprinkled on the screens of the bee shipping cages. A good way to do this is to turn each cage flatwise, with a metal container of some kind underneath the cage to catch any drippings of syrup. If the bees are hungry, they will take the syrup from the screen quite readily.

It is essential to have the bees well filled with syrup at the time they are put into hives so that they will not fly about but will settle down in the hives and begin to draw out the full sheets of comb foundation.

Bees should be installed late in the evening if possible, to avoid drifting. Each hive should contain four or five frames with drawn combs, if available, or comb foundation. The empty space in each hive is for the package of bees. Save the remaining frames to be used later, when the empty cage is removed.

Remove the cover board of the bee shipping cage. To remove the feeder can tilt the bottom of the bee cage up a bit and let the can slide out far enough to grasp the bottom. Before lifting the can out, place the cage of bees in the empty space on the hive close to the frames. Then take the feeder can and queen cage out of the package. Remove the metal and paper, if any, covering the candy in the end of the cage. Hang the queen cage, candy end up, between the top bars and place the cover on the hive.

ROYAL JELLY

From Scotitsh Beekeeper, November 1957

THERE HAS BEEN much discussion of late of the wonderful properties of Royal Jelly. It is being used extensively in Paris as a beauty treatment, and in many parts as a restorer of youth.

The following story illustrates its efficacy.

A sailor acquired several jars of royal jelly on a visit to America and brought them home to his aged parents who lived on Clydeside. He extolled this wonderful new substance and persuaded his mother to put it to the test.

Off he went to sea again and did not return for nearly a year. On his return he was astonished to be met by a sprightly young lady who threw her arms around his neck and greeted him in a most profuse manner.

Eventually he disentangled himself and exclaimed that he was afraid he did not know her.

"But John, I am your mother," she replied, "I've been taking your royal jelly and it's worked wonders."

He looked at her in amazement, hardly believing his eyes. "I'll say it has."

It was then that he noticed a perambulator with a baby in it.

"Good gracious," he said, "don't tell me I have a baby brother."

"Oh, no John," his mother replied, "that's your Dad—he took an overdose."

XUM

A Beekeeper's Notes

Stolen Bees and Fish Bait

by DONALD R. SILVERNAIL, Vicksburg, Mich.

I MAKE IT a point each winter to give periodic inspection to each hive of bees. With a tool of heavy wire, I remove each entrance cleat and carefully scrape out the dead bees that have accumulated on the bottom board of the hive. On my last inspection I went from hive to hive repeating this procedure. When I approached the next to the last one, I gasped in surprise. The hive was gone! Only the hive stand remained. It seemed incredible that some one had stolen it—but that is what happened.

I sincerely wish the theft had not been my very best equipment and my best bees. I had united two colonies in new factory made equipment. The bees were two choice packages from the South. All hives except this one stood in full view from our home. The honey house cut off any view of this particular hive, so the intruder was able to work without danger of being seen.

A few hours after reporting the theft to the County Sheriff's office, another theft of bees was reported. A beekeeper had sold three colonies of bees. When the buyer arrived to remove them, there were only two colonies where the night before there had been three. These two thefts were alike. Both bee yards were beside a fishing lake, and only one hive had been stolen from each yard.

Indian Lake, where my home and bee yard are located, is heavily fished in winter. Always the ice fishermen have been permitted to cross our ground on their way to the lake. The path is only a few feet from my row of hives. It is quite obvious that some ice fisherman had stolen the hive—but why?

I soon found the answer. Bee moth larvae make choice bait for ice fishing for blue gills. Corn borers stand first on the list, but bee moth larvae are second. Corn borers cost 60 cents a dozen from the local bait dealer; bee moth larvae are 40 cents a dozen Some ice fisherman has decided to raise his own bait, and taken this unscrupulous method of doing it.

Someone had tried to buy cull combs and spur comb from me several months earlier. Because I was saving carefully all wax to be made into foundation, I priced the combs at $1.50 per pound to discourage the buyer. One dollar and a half per pound, plus rendering charges, totaled the amount I was paying for foundation at that time. Of course, the price seemed ridiculously high to him, and he secured combs elsewhere for 40 cents per pound.

This bait dealer of honest reputation has successfully raised large numbers of moth larvae for sale during this last winter. His successful attempt has evidently inspired others to try the same experiment. The process is not too difficult. The start is made in warm weather. The full grown wax worms are removed from the wax refuse and placed, 500 at a time, in a cylinder. The cylinder has a screen bottom for ventilation, and a screw top for access. Inside this cylinder is placed a roll of corrugated cardboard, a little smaller than the cylinder. The wax worms crawl up inside this roll, occupying the corrugated spaces and spinning their cocoons. The worms are then kept in

a cool place. They are sold to ice fishermen from these cardboard rolls. The cardboard is unrolled as needed, the worms removed and sold in little plastic containers at 40 cents per dozen. The weather is no longer a factor in the making of increase once full-grown larvae are on hand. In winter, the hive with combs (no bees, of course) is simply placed in a warm room with some worms from the corrugated roll. In the summer-like warmth, the wax worms in their cocoons soon become moths, and deposit their eggs in the combs. Soon there is another brood of wax worms ready for cool storage.

I visited a friend in another state last summer. It appears his colonies are usually too weak to combat the moths. He tries to produce honey, but mostly he raises wax worms. These worms are piled in heaps in the gravel drive, saturated with oil, and burned as pests. I'm thinking of the money he could be making as a bait dealer.

When I Didn't Look the Part

H. H. ROOT, Medina, Ohio

MANY YEARS ago I was scheduled to speak at a state meeting in Wyoming. My train was on time to the minute so I walked along the platform at the station of Sheridan, carefully watching the bystanders for I was to be met. I walked up and down a couple of times and as no one approached me I decided to walk into town, a distance which I later found out was about a mile. My suitcase and camera were heavy and the day was hot, and my clothes not too well pressed when I got off the train. I did not look too neat by the time I reached the office of the dentist who, I knew, was Secretary of the Association. Two or three cars passed me that hot morning but I plodded on. In the dentist's office were several beekeepers and I announced my name. One of them who had driven in from the station said, "Why, I saw **you** on the train platform"! Evidently I had not looked the part. Perhaps I was too tall or not tall enough; perhaps my clothes should have been better pressed. Of one thing I was sure, I had not looked distinguished enough. I decided the next time I would have my name on a band around my hat or around my arm.

Two days later, after the meeting was over, a beekeeper friend and I, waiting for my train, got into a discussion as we sat in his home after breakfast. I do not remember what we were talking about; it might have been the two-queen system then being extensively tried in Wyoming. All of a sudden we heard a train whistle and discovered that train time had come before we knew it. With a half mile to go we drove at breakneck speed, only to see the last coach disappearing in the distance. I was quite disturbed for I had other appointments to make but I did not know the resourcefulness of my host. He assured me that it would be no trick to catch the train 40 miles further east for it had a couple of other stops to make. Quite without hope I dashed to his car and he started in pursuit. That was a wild ride. At one place we made a short cut, went down into a dry river, and up what looked like an impossible bank on the other side. Again we raced on and actually overhauled the train as it stood about ready to start. My friend blew his horn violently, attracted the conductor's attention and he held the train while we ground to a stop and I ran over and climbed on. I had no time to thank my friend properly for his wonderful demonstration of western hospitality, but I wrote him a note on the train trying to express my real gratitude.

What a difference there is in people. My father-in-law, one time in Chicago, addressed a man on the street saying that he wanted to get over to Van Buren Street. The man without stopping replied, "I have no objection" and walked on.

XUM

Asked & Answered

How to Avoid Having Foam on Surface of Jars of Honey

Q. Every year after extracting our honey and bottling it in five pound jars, after two or three weeks, a white waxy foam will gather in the honey around the shoulder of the jar where the jar starts to get smaller, one or two inches under the level of the honey. We heat our honey to around 150 or 160 degrees and strain it through three layers of fine cheesecloth with a board under the cloth for it to run on to the bottom of 40-gallon tanks. For a while I thought I was bottling from the tanks before all the air bubbles had a chance to rise to the surface, but I have allowed the honey to stand in the tank three weeks and still am troubled with some foam gathering at the shoulder of the jar, although not as bad possibly as when bottled sooner. We extract and bottle in our basement and heat our honey on an oil stove with low flame, but no hot water bath. Can you advise me on how I can overcome this trouble?

A. Your procedure is in line with that of most beekeepers who bottle honey. I sell honey from my home and heat it in 60-pound cans in a wash-boiler containing water, the boiler placed over a gas hotplate. You mentioned heating your honey on an oil-stove with low flame, but no hot-water bath. Your method would be somewhat comparable to placing cans of honey in a hot room, with the heat thermostatically controlled. I am wondering just what sort of an arrangement you have. Some bottlers who wish to have the honey crystal clear, with no foam on top of the jars, heat the honey to around 160°F., then allow it to cool, also allow the air bubbles which apparently cause the particles of foam on top to rise. This scum is skimmed off after the honey is cooled, then the honey is again heated to about 130°F. and put into jars, the caps or covers of the jars being placed on while the honey is hot. This seems like a lot of extra work but if the method will result in crystal-clear honey, that is something to be desired.—M. J. Deyell.

Snow Closing the Entrance

Q. Will it injure the bees for the snow to drift high enough to cover the hive entrances, or will enough air pass through the snow to supply the needs of the bees?

A. Loose snow does not injure the bees even when it covers the hive completely. In fact, during cold weather the snow affords additional protection. The bees do not need much oxygen during winter if they are quiet and wintering well. Plenty of air would pass through the snow to supply all of the oxygen needed for strong colonies that are quiet. If wet, slushy snow is driven into the entrance by the wind and then freezes, closing the entrance entirely, there would be some danger of the bees smothering, especially if the colony is abnormally active and not wintering well. It is here that the upper entrance, a 5/8-inch hole in the hand hold of the hive, is not only a safeguard but a means for the escape of moisture.

Size of Bee-Space

Q. How much space should be above the tops of the sections in one super and the bottom of the section holders in the super above?

A. The space between hive parts, such as between the top-bars of the frames in the brood chamber and the bottom bars of the section holders or frames in the super above, between the supers, between the top bars of the frames of the brood chamber and the cover, or between the tops of the sections and the cover, as well as between the end bars of the frame and the ends of the hive, should be such that the bees will neither build combs in the space nor close it with propolis. If the space is too great, the bees will build comb in it, and if it is too small they fill it with propolis.

The term "bee space" is applied to that space which the bees are willing to leave free from comb or propolis. This is the basis of the Langstroth invention, thus making it possible to handle combs without cutting them loose from the ends of the hive or breaking propolis connections.

In the early days of hive construction 3/8 of an inch was considered a proper bee space, but this resulted in comb being built in the space when the colony became crowded, so the bee space has been reduced to 5/16 or 1/4 inch. This was made possible by devising machinery to cut hive parts with greater accuracy. If the space is less than 5/16 of an inch it will be filled with propolis and if much more than 5/16 it is liable to be filled with comb.

Happy Hobby

E. D. FOX, Washington, D. C.

[This was written in July 1957, and is printed for the benefit of beginners. Mrs. Fox has written later articles which we have used.—Ed.]

WE BELIEVE we have a crop of locust honey this season. It is light gold in color and mild in flavor. The honey was removed from the hives the latter part of May.

Here in southern Maryland it usually rains when the locust is in bloom so we were quite happy when the weather stayed dry and our bees were able to gather the locust nectar.

Last year we filled over 400 pound jars and to date we have 160 pounds with eight more supers ready to come off momentarily. To us this is wonderful as we are small beekeepers with just seven working hives at present.

The fruit bloom was fair this spring, also the clover. Bees here now, do not have too much to work on except the clover. We noticed a few honeybees on our mimosa busily rolling up the fluffy bloom into small balls and we were not quite sure if they were gathering nectar.

With us beekeeping is a satisfying hobby started in 1952 when a swarm alighted on our neighbor's forsythia bush. She readily consented to our taking the bees. A nearby friend hived them for us, but in complete ignorance, we did not feed the bees properly. True to form, the following day the bees made a hasty retreat. I still recall my feelings as I watched them go skyward while I futilely called out, "Come back, come back".

This prompted us to take the short beekeeping course given in the evening at Maryland University. Professor George Abrams is one of the best in our opinion. We still make mistakes but not gigantic ones and we learn from them.

We do try to keep a neat bee yard as Charles Gouget suggested in his interesting article (July issue of Gleanings). I'd like to tell Mr. Gouget that we have our honey room in a chicken house but it is not like he described.

We reconverted a neat poultry house into a workshop. One room was partitioned off for a honey room. We scrubbed it and painted it before equipping it with electricity, sink, running water, etc. We have a small extractor and this spring we purchased a storage tank. We do not know how we ever bottled honey before. With these helpmates it is a breeze.

We have invested quite some folding money in our beekeeping venture which most beginners probably would hesitate to do and it will be years before we get any large returns but we enjoy something much better.

Our small granddaughter spends a good deal of time with us and shares our pleasure in watching the tiny foragers whizzing in from the fields with their precious cargo. With us on a quiet summer day she likes to hear the music from the hives and many times she leads her grandfather by the hand to the bee yard. Then he must catch a "drum" as she calls the drone. He is examined carefully and then returned on the wing, unharmed.

Eat Honey and Live Longer

HERE IS a bright new book of honey recipes by Maria Lo Pinto. The author is a lawyer whose hobby is cooking. Originally afraid of bees because she was stung when a child, she first learned something about them in the mountains of Sicily. A friend whose father was a physician relied on a diet of milk and honey as a help in getting rid of ulcers and arthritis. Maria Pinto at once became a convert to the use of honey, began to use it in her kitchen, and became a self-taught enthusiast. This book is one of the first to feature honey of different flavors for different recipes. There are instructions for substituting honey in your favorite recipes on page 144. There is an interesting menu for a whole week on page 154, and surely to follow this is to live long and be happy.
Publishers: Twayne Publishers, Inc., 31 Union Square, New York 3, New York. Price $3.50.

XUM

Just News

The **Virginia State Beekeepers' Association** will hold its regular winter meeting on February 27 and 28, 1958, at Natural Bridge, Virginia in the Natural Bridge Hotel. All Virginia beekeepers make plans to attend. We expect to have a very interesting program. There will be one or more out-of-state speakers, moving pictures, and display of bee equipment. This will be a good time to visit the Natural Bridge if you have never seen it. "One of the wonders of the world."—Henry W. Weatherford, Sec.-Treas.

Apicultural Society of Rhode Island will sponsor a Farm and Home Show at Cranston Street Armory, Providence, R. I., March 6, 1958.

7:00 P.M. Uses of Honey in Baked Goods—Miss Gertrude A. Cooke, Dietition, VA Hospital, Providence Honey Cookery Awards Contest —Ladies of the Society.

8:00 P.M. Motion Pictures, Bees and Honey, courtesy Farm Film Foundation, Washington, D. C.—Bees For Hire, courtesy Texas Company, Boston, Mass.

9:00 P.M. Film Lecture, Mr. Edwin J. Knight, Sr., Prominent R. I. Orchardist—Importance of the honey bee in apple pollination.

The Society proposes to distribute 5,000 2-oz. jars of honey to housewives attending the show as part of the Honey Promotion Activities of the Society. We thank the honey packers and the R. B. Willson Company for their generous gift.—John P. Card, Secretary.

The winter meeting of the Connecticut Beekeepers' Association will be held February 22, 1958, 10 A. M. at the Connecticut Agricultural Experiment Station, Huntington Street, New Haven, Conn. A speaker or panels on various beekeeping subjects will be the program for the day. Dinner will be potluck with those attending, bringing a dish of food. Coffee will be furnished. Beekeepers and visitors interested in bees are cordially welcome to attend. —Philemon J. Hewitt, Jr., Chairman of Publicity.

The **Midwestern Beekeepers' Association** will meet at the I.O.O.F. Hall, 812 Westport Road, Kansas City, Missouri on Sunday, February 9, 1958 at 2:30 P.M. Stimulative and antibiotic feeding will be discussed. Pictures pertaining to beekeeping will be shown. Everyone welcome.

The new officers elected for 1958 are as follows: President, Joseph F. Maher, Kansas City, Mo.; Vice President, A. W. Magers, Kansas City, Kansas; Secretary, Carroll L. Barrett, Gladstone, Mo.—Carroll L. Barrett, Sec.

The next meeting of the **Middlesex County Beekeepers' Association (Mass.)** is scheduled for Saturday, February 22, 1958, at the Waltham Field Station. There will be a pot-luck supper followed by a business meeting. Final plans for the forthcoming annual Spring Flower Show will be discussed, and schedules distributed for workers to man the annual honey exhibit sponsored by our association.—L. C. Proctor, Corres. Sec.

Giacomo Don Angeleri, editor of L'Apicoltore Moderno, died August 19, 1957. His 710-page book "Fifty Years With Honeybees and Beekeepers" appeared in 1955. A monument engraved with a honeybee was erected over his grave as a symbol of this kind, indefatigable teacher of Italian apiculture.

Eastern Missouri Beekeepers' Association held its regular meeting November 5th, 1957. The following officers were elected to serve for 1958.

President, Mr. Ray Reinhold; 1st Vice President, Mr. John Morden; 2nd Vice President, Mr. Herman Leely; Secretary, Mr. W. Wallace Daugherty, 4515 Ringer Road, St. Louis, Mo.; Treasurer, Mr. Kurt Simon.

Our first regular meeting for the year will be held February 4th, 1958, 7:30 P.M.; at the county court house. We hope to see all of our members present and invite beekeeping hobbyists to attend.—W. Wallace Daugherty, Secretary.

The **Norfolk County Beekeepers' Association** will hold its next meeting at the Norfolk Co. Agricultural School, Walpole, Mass., on February 3, 1958 at 8 P.M. This will be an interesting winter meeting. As usual delicious refreshments will be served.—Edith L. Colpitts, Corres. Secretary.

The annual winter meeting of the **Vermont Beekeepers' Association** will again be held in conjunction with the **Vermont Farm Show, Inc.,** at Barre, Vt., on February 11, 1958. The beekeepers luncheon and meeting will begin at 12:30 P.M. at the Country House Restaurant. Turkey dinner, $1.75. Among the afternoon speakers will be Mr. Gravely, Eastern Branch Manager of The A. I. Root Co., and Mr. Tompkins of the Vermont Department of Agriculture. Everyone is welcome to attend whether beekeepers or interested in nature or agriculture. —Clyde N. Wood, Sec.

A Review of "The Diseases of Bees"

by W. H. AUGHTERSON

"THE DISEASES of Bees" has been compiled from a series of articles published in the Australian Beekeeper.

The author, Mr. W. H. Aughterson, a young law student and amateur beekeeper in Camberwell, Victoria, has collected information on bee diseases previously published works being acknowledged, and added his own comments to bring the Australian apiarist a thorough insight into diseases that are likely to affect his bees.

This book is well illustrated throughout its 48 pages. Additional information may be obtained by writing the publishers, Messrs. Pender Bros. Pty., Ltd., Elgin Street, Maitland, N.S.W., Australia.

Bees "Stole" Alfalfa Seed in Utah

A UTAH beekeeper was surprised to receive a telephone call from an irate alfalfa seed grower one day. The farmer demanded that the beekeeper move his bees immediately. "Why", asked the surprised beeman. "Because your darn bees are stealing my alfalfa seed," shouted the farmer. "I'll be right over" said the astonished beekeeper and jumped in his truck and drove over to see the farmer.

Upon arriving at the farmer's home he asked to see what the bees were doing. The farmer walked with the beeman to his alfalfa field and pointed to the bees, which had pollen pellets on their legs. "See," he said, "they are carrying my seed away". (This was told as a true story at the Utah Beekeepers' Meeting, reports John Holzberlein, Jr. of Meeker.—Taken from "B Notes".)

OLD COMB VS NEW COMBS: A Practical Solution

by ROBERT J. WYNDHAM, Upland, Calif.

THERE SEEMS to be a controversy existing as to the usefulness of old brood combs. On one hand, some old hands in the business are convinced that black brood combs are just as good as new ones. On the other hand, equally experienced beekeepers feel that they have reason to be afraid that the cell walls of very old combs have become so thick that they may stunt the development of the young bees.

If the old comb protagonists are right, it would be wasteful to go to the expense of foundation sheets and the time-consuming job of rendering the old combs, rewiring the frames, and imbedding the foundation. If the other camp is right the expense and labor would be well spent.

I found that there is a way to get rid of these blackened combs at no expense and with little effort. And I follow this practice also for the reason that the manipulations of good beekeeping often make old combs turn up in the third stories. Every beekeeper knows, what a nuisance it is to uncap these old combs.

It is easy to cull these old combs and to expose them for a night to freezing temperatures. Then, while they are still frozen, simply take a wire brush and brush away the wax to the base of the cells. The bees will draw them out same as they do with foundation sheets. Now and then the bees will do the demolition and rebuilding job themselves, so it comes natural to them.

It is a nice little job for a cold winter morning, so why not try it? You cannot lose.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 18c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10.h of the month, preceding publication.

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WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. THE HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA honey, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, RT. 2, LANCASTER, PA.

FOR SALE—Pure tupelo and wild flower in 60's. Honey candy. EN-R-G FOODS, INC., P. O. BOX 232, LANCASTER, PA.

MICHIGAN'S FINEST WHITE CLOVER HONEY. New sixties. Fully ripened. You'll be pleased. Sample 20c. JOHN McCOLL, TECUMSEH, MICH.

WHITE CLOVER honey in new sixties. Truck load or more. WESLEY JOHNSTON, BAD AXE, MICHIGAN.

Large lots, quality honey, 60's and drums. NORTH CENTRAL HONEY PRODUCERS' LEAGUE, BOX 211, BELLEVILLE, WISCONSIN.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT COMPANY, MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED — Light amber clover, fall flowers, buckwheat and white clover. Send sample and lowest price. CLOVERDALE HONEY CO., FREDONIA, N. Y.

WANTED—Honey in 60 pound cans, also beeswax, any quantity. L. E. ALLEN, TIPTON, MICH.

CASH for Amber and Buckwheat Honey. Best cash price for wax. HUBBARD, ONSTED, MICH.

WANTED—White extracted and buckwheat. Send sample and price. TRAPHAGEN, HUNTER, N. Y.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 BEDFORD AVE., BROOKLYN, N. Y.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WANTED—All grades of extracted honey. Carloads or less. Send sample and price wanted to HONEYMOON PRODUCTS CO., 39 E. HENRY ST., RIVER ROUGE 18, MICH.

We render cappings, old combs and buy your beeswax. Shipping tags sent on request.—M. R. CARY CORP., 219 WASHINGTON SQUARE, SYRACUSE 8, N. Y.

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WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. THE HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

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Large comb honey outfit. Some extracted. Idaho's best producing area. MRS. FRED ROBINSON, 503 FIFTH ST. S., NAMPA, IDAHO.

SUPERS, $1.00; four-cleat COVERS and BOTTOMS $ .75; FRAMES, 1M, $80.00; 5M, $75.00; 10M, $70.00. Write for price list. JOHANSON'S BEE FARM, 11360 REDWOOD HIGHWAY, HEALDSBURG, CALIFORNIA.

FOR SALE—Seven colonies of bees of 2 deep supers each, 12 deep supers, 16 shallows, many extras, bottoms, covers, 4 frame electric extractor, 2 years old, with wooden stand and decapping bench. All for $100.00. JAMES JANOCH, 768 WELLMAN ST., BEDFORD, OHIO.

New hives, frames, foundation, etc., in factory cartons, 20% off list. Also excellent equipment used one season, including Root extractor. Must sacrifice. All or any part. Reason: Relocating. Will give 4 inspected colonies to responsible party FREE. Write for full details. ALLEN WAGNER, JR., 25 SYCAMORE AVE., ALDAN, PA.

FOR SALE—400 8-frame colonies in good equipment. Located in Colorado. Box 26, GLEANINGS, MEDINA, OHIO.

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We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CARNIOLAN and CAUCASIAN Bees for 1958. Booking queens. Each, $1.00; 2-pound bees with queen. $4.00. 3-pound bees with queen, $5.00. LEWIS & TILLERY BEE CO., RT. 3, BOX 251, GREENVILLE, ALABAMA.

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HELP WANTED

WANTED—Man to operate retail sales and parcel post. Some knowledge of bees needed. State age, experience, family status, and salary range desired. THE A. I. ROOT CO., MEDINA, OHIO.

WANTED—Dependable bee men, good salary, modern 5,000 colony outfit. Also modern housing furnished if desired. Seasonal or year-raund work. JIM'S VALLEY APIARIES, JAMES E. BUNCH, SUNNYSIDE, WASHINGTON.

WANTED: Two men for 1958 package season. Write for full information, giving experience, age, height and references. HOWARD WEAVER & SONS, NAVASOTA, TEXAS.

WANTED—Experienced man for queen and package production. Seasonal or year around. LIONEL HOPKINS, MARINGOUIN, LA.

HELP WANTED—Top experienced help. $300 to $400 per month. One inexperienced. Care of GLEANINGS, BOX 208, MEDINA, OHIO.

WANTED—Two men to work in our apiaries. Top wages. 5-day work week. Other advantages. SCHULTZ HONEY FARMS, RIPON, WIS.

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HONEY PLANTS—Ask for illustrated 1958 catalog. One packet seed each 6 unusual honey plants, $1.00; Vitex negundo, one year plants, 4 for $2.00; dozen, $5.00; Pellett Clover root divisions, 25, $2.00; 100, $5.00; postpaid. PELLETT GARDENS, ATLANTIC, IOWA.

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BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, RT. 1, LAWSON, MO.

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Package Bees ready in April
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We prefer to send package bees by Parcel Post so please inclose postage with order. All queens selected from our Northern Apiaries for Hardiness and Honey production All queens shipped Air Mail.
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PRICES	2-lb. & Q.	3-lb. & Q.	Extra Qns.
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100 & up	3.75	4.85	1.20

NOTICE: We are adding DADANT'S NEW MIDNITE CAUCASIAN HYBRID QUEENS to our regular Caucasian line. When ordering Midnite queens or packages, add 30 cents per queen or package. We are booked up for April. We have some open dates for queens in May.
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PACKAGE BEES — QUEENS
Three- banded Italian Stock
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Requeening - rebuilding - increasing. Best bees obtainable from our 30 years of experience. You get fast service and a square deal.
Queens, ...$1.60 each
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Dear Customers:
We wish to take this opportunity to thank you for the business that you have given us in the past. We are booking orders now for 1958 shipment, so please let us have your order as soon as possible.
Thank you.
CARLUS T. HARPER
New Brockton, Ala.

FOR SALE—ROYAL JELLY and the Little Queen Royal Jelly Extractor. ROYAL JELLY ENTERPRISES, 1012 LOS CARNEROS AVE., NAPA, CALIF.

ROYAL JELLY. Nationally known "Api-Vitalex" brand hi-potency. Royal Jelly products. Capsules and Beauty Creams. Wholesale distributors and agents sought everywhere; particularly among beekeepers. Large profits available. Write air mail for prices and literature. "API-VITALEX" DEPT. BG; BOX 6674, MEDICAL CENTER STATION, DALLAS 19, TEXAS.

ROYAL JELLY box of 30 capsules with 50 MM. Royal Jelly per capsule, $4.35 to beekeepers. Retails for $8.50; box of 1000, in bulk, $135.00. Postage paid in the U. S. PRAIRIE VIEW HONEY CO., 12303 12th ST., DETROIT 6, MICH.

ROYAL JELLY BEAUTY CREAM in ¾-oz. jar, $1.50 to beekeepers, retails for $3.00. 1-oz. jar, $2.00 to beekeepers, retails for $4.00. 2-oz. economy size, $3.50, retails for $7.00. PRAIRIE VIEW HONEY CO., 12303 12th ST., DETROIT 6, MICH.

INFORMATION on producing and preserving Royal Jelly commercially. We are the first to advertise Royal Jelly for sale in natural form, in leading bee journals throughout the U.S.A. I don't believe our record of production is surpassed anywhere. Information of our years of experience "The Short Steps to Production" will be sent prepaid for only $4.75. O. K. ANDERSON & SON, BOX 193, COFFEE SPRINGS, ALA., U.S.A.

ROYAL JELLY box of 30 capsules 25 mg., each, $5.00; 10 boxes, $25.00; 50 mg. box of 30 capsules $8.50; 10 boxes, $42.50. Prepaid in U. S. SUNNYBROOK HONEY FARMS, 13600 LIVERNOIS, DETROIT 38, MICHIGAN.

ROYAL JELLY—We buy any amount. We sell in any amount, also royal jelly capsules at jobber, wholesale or retail levels. R. C. DANIELS & COMPANY, PICAYUNE, MISS.

FOR ROYAL JELLY, quality and quantity, contact OVERBEY APIARIES, BUNKIE, LOUISIANA.

WANTED: To buy bee outfits and bee equipment in any area. We have buyers for outfits, regardless of size. SIOUX HONEY ASSOCIATION, Supply Dept., SIOUX CITY, IOWA.

CASH PAID for 10-frame bee equipment with or without bees. Will pick up at your honey house. BOX 158, MEDINA, OHIO.

MAGAZINES

Archiv fur Bienkunde, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENE-VERGLAG, GIELBACK, LINDAU, GERMANY.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U.P. India or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free or Rs ½, or s2/6, or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

YOU'LL LIKE GOAT MILK! Profit and health with dairy goats. Sample monthly magazine and information FREE. DAIRY GOAT JOURNAL, DEPT. T, COLUMBIA, MO.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $5.50 per an-

num, or $6.00 including membership of the Bee Research Association. Apicultural Abstracts only $4.50 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P.O. Box 3106, Cape Town, South Africa.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription $3.00. BOX 189, SAN ANGELO, TEXAS.

Bee Lines to The Editor

Royal Jelly Craze Becomes a Mania

"The royal jelly craze among beekeepers has reached the frenzy of a California gold rush, a mania in fact. However, I am not the least bit enthused; little or nothing is known as yet about medicinal properties of royal jelly. Besides, self diagnosis and medication is the height of folly, in my opinion. There are some unethical manufacturers and wholesalers who would stop at nothing to make a dishonest dollar. The person who is hypnotized by the extravagant claims of these charlatans take their lives in their own hands. For example, this person may have incipient cancer or some other malignant disease that can be discovered only by some trained physician. Precious time may be lost if he tries to treat himself with royal jelly. He might even lose his life as a result of the delay. Moreover, royal jelly is not endorsed by the American Medical Association.

"Scientists do not reason by analogy, that is, by saying that what is beneficial to the bee will have the same effect upon the human body. Their findings are based upon facts that have been thoroughly documented from tests and experiments. I am one of a committee of four to make a report on royal jelly. I refuse to report on anything that is not documented by reliable scientists". —O.L.P.

(Continued on page 124)

QUEENS
only
QUEENS
A. Vallotton
1440 So. Juniper
Escondido, Calf.

A new name in the trade but backed by 35 years of successful commercial beekeeping on three continents. The most modern methods and equipment and 4000 nucs. Breeding queens selected between Key West and Seattle during a two years' search. The ideal location to produce queens of the highest quality possible at any price and as early as March.

1-100 ..... $1.25
100 up 1.10

Ask for more information and prices on large orders booked far in advance.

1958 Prices
Italian Bees and Queens

	1-24	25-99	100-up
2-lb. pkg. with queen	$4.50	$4.25	$4.00
3-lb. pkg. with queen	5.70	5.45	5.20
Italian Queens	1.45	1.35	1.25

We are feeding Fumidil for Nosema control.

J. F. McVay Jackson, Alabama

THE AUSTRALASIAN BEEKEEPER

The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd. Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M. O. 18/-(Approx. $2.15) per year, post free. Sample copy free on request.

Protect Your Future. Buy Your Savings Bonds Now.

YORK'S Italians Starlines and Midnites

for 1958

Fumadil Fed and Quality Bred

It's time to plan for quality packages for quality honey in 1958. Greater demand for April shipping dates makes early planning and ordering necessary.

Supersedure your problem? Order for delivery larger packages for arrival later than usual. Also, realize that York's Queens are Fumadil fed during periods to assure fast buildup.

Help us to help you, ORDER TODAY.

MARCH - 1958

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL - 1958

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY - 1958

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Want to pick up your bees: Truck loading facilities are among the best with daily volume high enough to avoid package holdover.

Shipments also by express and parcel post.

Air freight shipments are possible if you can pick up your bees from large air terminals. Write us for further information.

Packages with Italian Queens

Quantity	1-24	25-99	100 up
2 lb.	$4.50	$4.25	$4.00
3 lb.	5.70	5.45	5.20
4 lb.	6.90	6.65	6.40
5 lb.	8.10	7.85	7.60
Extra Queens			
Italian	1.45	1.35	1.25

Packages with Starline or Midnite Queens

Quantity	1-24	25-99	100 up
2 lb.	$4.80	$4.55	$4.30
3 lb.	6.00	5.75	5.50
4 lb.	7.20	6.95	6.70
5 lb.	8.40	8.15	7.90
Extra Queens			
Starline or Midnite	1.75	1.65	1.55

Queenless packages —deduct $1.00 per package

Tested Queens — add $1.00 per pkg. or for extra queen.

Terms: Small orders cash, large orders $1.00 deposit per package and balance two prior to shipping date.

Midnites---the new Caucasian hybrid strain available here during their first year of commercial production. Orders are already being booked for most of the more desirable dates. Be among the first to give this bee a trial in your area. Production and gentleness promise to be unsurpassed.

Remember, from York Bee Company you get the Strains Preferred by Leading Honey Producers.

Shipments start first of April depending upon spring weather conditions.

YORK BEE COMPANY **Jesup, Georgia**
(The Universal Apiaries)
412 W. Orange Street **P.O. Box 300**
Phone: Garden 7-4131

Reg. U. S. Pat. Off.

PACKAGE BEES "GULF BREEZE" ITALIAN QUEENS
At this time we can only accept package bee orders for shipment not later than April 15th. Queen orders accepted for shipment until late October.

QUANTITY	QUEENS	PRICES: 2-lb. Pkgs. W/Q	3-lb. Pkgs. W/Q	4-lb. Pkgs. W/Q
1- 9	$1.40	$4.35	$5.45	$6.60
10-49	1.30	4.10	5.20	6.30
50-up	1.20	3.85	4.95	6.00

BESSONET BEE COMPANY DONALDSONVILLE, LA.

BETTER-BRED QUEENS Three-Banded Italians
To supply your bees and queens efficiently and please you is our greatest desire. Please book early. No deposit.

	Queens	2-lb. w/q	3-lb. w/q
1 to 24	$1.40	$4.25	$5.35
25 to 100	1.15	3.75	4.75

CALVERT APIARIES Calvert, Ala.

Plan Early to Buy Quality Package Bees & Queens
Dadant Starline Hybrid Queens & Garon's 3-Banded Italians

QUEENS	Starlines	Italians	PACKAGES WITH QUEENS 2-lbs.	3-lbs.	4-lbs.
1-24	$1.70	$1.30	$4.05	$5.05	$6.05
25-99	1.60	1.25	3.95	4.95	5.95
100-up	1.50	1.20	3.85	4.85	5.85

For Dadant Starline Queens, add 30c extra per package
Queens clipped, marked and air mailed at no extra charges.
GARON BEE CO. Donaldsonville, La.
Reg. U. S. Pat. Off.

LIVE AND LEARN

(Continued from page 95)

not buck up against that 13 cent honey we spoke about a while back.

What does it all add up to, and what is the text of the sermon? For one thing, it means that if you want to make something out of your honey, you can't sit on your fanny and wait for the public to come clamoring to your door (And Uncle Sam can't buy it all.).

Best assurance for a good honey crop is young laying Carniolan or Caucasian queens. They are the answer for gentleness and production.
Queens, 1 to 49, each; $1.40
50 to 100, $1.30; 100 up, $1.20.
All air mailed. Booking now for early March. No package bees this season.
W. D. Reams
Box 87, Labelle, Fla.

J. E. WING & SONS
45 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

ITALIAN BEES & QUEENS
2-lb. pkg. w/q, $3.45 3-lb. pkg. w/q, $4.15
4-lb. pkg. w/q, 5.00 5-lb. pkg. w/q, 6.00
Extra queens 1.05
Live delivery guaranteed and health certificate with each shipment.
GASPARD BEE CO. HESSMER, LA.

ITALIANS
Queens, $1.25 Bees, $1.00 Cages, 50c
Royal Jelly by contract
Sioux Member 905
NASSAU BEE CO. HILLIARD, FLA.

No Matter What Your Interest
Whether you are a Commercial Beekeeper; a Sideline Beekeeper; or a Beginning Beekeeper,—you'll find what you want in ABJ. PLUS Science and Industry; Honey Plants; Meetings; Crops and Markets—AND your questions answered FREE.
Send for a sample copy.
American Bee Journal
HAMILTON, ILLINOIS

THREE BAND and PURE ITALIAN HYBRID
Package Bees and Queens
We ship pure worker bees by mail, express, or truck—with queens introduced or not whichever you like. We guarantee live arrival.
1 9 5 8 PRICES
Each with a Young Laying Queen

Lots of		2 lbs.	3 lbs.	4 lbs.	5 lbs.
1 to 11,	Each	$4.25	$5.35	$6.45	$7.55
12 to 29,	Each	4.05	5.10	6.15	7.20
30 or More,	Each	3.85	4.85	5.85	6.80

JACKSON APIARIES **P.O. Box 58** **Funston, Ga.**

JENSEN'S
Package Bees and Queens

Packages with Dadant "Starline" Hybrid Queens	1-24	25-99	100-up	Packages with Jensen's "Magnolia State" Italian Queens	1-24	25-99	100-up
2 Lb.	$4.80	$4.55	$4.30		$4.50	$4.25	$4.00
3 Lb.	5.90	5.65	5.40		5.60	5.35	5.10
4 Lb.	7.00	6.75	6.50		6.70	6.45	6.20
Starline						Magnolia	
—QUEENS—							
$1.75	$1.65		$1.55	$1.45		$1.35	$1.25

Clipped and Marked Free — Air Mail Postage Paid
JENSEN'S APIARIES **MACON, MISS.** **U.S.A.**
Reg. U. S. Pat. Off.

BEE LINES TO THE EDITOR

(Continued from page 121)

Nomenclature of the Apiary

"Every trade, profession, art or science has a nomenclature of its own, the correct use of which marks those who are familiar with the subject. The poultryman **gathers** his eggs, the farmer **harvests** his crops, and the botanist and geologist has his **collection** of specimens, while the thief and burglar **rob** their victims.

"When a man from Northern California called on me last week and said that he had a couple of hives of bees but did not **rob** them last fall and so had no honey, I took the opportunity, —after telling him the amount of surplus honey I harvested from my three hives of bees—to add that I did not 'rob' my bees, but that 'I worked them.' And added, incidentally, that I so worked my bees that in the past 20 years I had only one colony that cast a swarm. That was in a case of supersedure, where two cells had been built and the old queen had died before the first cell hatched; that bees swarmed with the first virgin queen and that on discovering the facts, I had destroyed the remaining cell and dumped the swarm back in the hive, whereupon the bees went to work and I harvested a normal crop of honey.

"And then today when the December Gleanings came, I found on page 722 and again on page 723 the expression that the bees 'did less fighting when being **robbed'**, and on the following page, 'after being **robbed** of their surplus'.

"Since when has the **working of bees** become a crime? Nuff sed".—L.L.B.

He Got His Nose Too Close

MRS. EDITH FOX, Washington 22, D. C.

THE WILD ASTERS were in bloom when my husband noticed a faintly sour odor emanating from one of his beehives.

He asked our son-in-law to check and see if he could detect the odor. Tommy obliged, but he stuck his nose just a bit too c'ose to the hive entrance and was promptly stung for intruding. He made a hasty retreat.

My husband, at once sympathetic, carefully removed the stinger. Tommy said to him quite solemnly, "I'm not sure which one it was, you or that bee, but I got the impression one of you just didn't like me!"

LET'S TALK ABOUT HONEY PLANTS

(Continued from page 101)

have different tastes, and often it is the honey which they ate as a child that seems to them to have the best flavor.

Buckwheat Honey. I recently received a jar of honey from the well-known naturalist and wild-life photographer, Fran Hall of Northfield, Minnesota, which is predominately buckwheat. Both smartweed and buckwheat belong to the buckwheat family, a group of plants well known to produce a honey with a distinctive and potent flavor and with a few exceptions amber to nearly black in color. This sample was typically dark amber with a strong characteristic flavor. To people brought up as youngsters in New York and Pennsylvania on buckwheat honey, all other honeys taste flat and insipid and beekeepers in these states often receive letters from former residents begging for some of that good old buckwheat honey.

In Arkansas, the rich flavor of Spanish needle honey is esteemed above all others. In southern Georgia, the aromatic flavor of gallberry honey is very popular and many Floridians insist on orange honey although both of these seem off-flavored to many northerners trying them for the first time. In northern New England, goldenrod honey is highly prized by many beekeepers for home consumption and as a child it was my favorite and still is. It must be obtained free of aster honey as the combination is much less flavorful, especially if mixed with the frost aster, the honey from which has an unpleasant odor if not thoroughly ripened.

QUEENS

Italians		Caucasians	
PKGS. W/Q.	1-24	25-99	100 up
2-lb.	$4.30	$4.25	$4.00
3-lb.	5.40	5.30	5.10
Nice large qns.	1.25	1.15	1.05

Again this season we have enlarged our queen yard to fill your orders promptly, so send us your order of 1 or 1000. Producer of Royal Jelly.

Mitchell's Apiaries
BUNKIE, LA.

"Wishing you a Happy and prosperous New Year"

Let us remind you that we stand ready to serve you, but you must give us your order as soon as possible for the dates you prefer. Orders are now coming in. Will feed Fumadil B to control any possible Nosema.

1958 Package Bee Prices

	2-lb. w. Reg. Qn.	3-lb. w. Reg. Qn.
1-25	$4.75 ea.	$5.75 ea.
26-99	4.50 ea.	5.50 ea.
100 up	4.25 ea.	5.25 ea.

For Island Hybrid Queens add 30c per pkg.
"They Produce"

ROSSMAN APIARIES
P. O. Box 133 Moultrie, Ga.

When you think of BEES and QUEENS

Think of —

Merrill Bee Co.

P.O. Box 115
State Line, Miss.

Our 100% SATISFACTION has been good for 46 years. Let us prove it.

Pkgs. with Queens

2-lb. pkg. . . . . $3.50 any number
3-lb. pkg. . . . . 4.50 any number
Untested qns. 1.00 any number
Tested qns. . . 1.50 any number

Terms $1.00 per package with orders, balance before shipments.

PACKAGE BEES **QUEENS**

"ITALIANS"

Wilbanks offers you tested stock proven for honey producing ability and easy handling. Satisfied customers through the years assure you of the greatest value here.

	1-9	10-49	50-up
2-lb. pkg. with young laying queen	$4.24	$4.00	$3.75
3-lb. pkg. with young laying queen	5.35	5.10	4.85
4-lb. pkg. with young laying queen	6.45	6.10	5.85
Extra Queens	1.40	1.30	1.20

Shipments by Express, Parcel Post, or your Truck
Quality Does Not Cost — It Pays

THE WILBANKS APIARIES **Claxton, Georgia**

1958 PACKAGE BEES AND QUEENS 1958

FOR PROFIT OR PLEASURE — **Bright 3-Banded Italian** — THE BEST KIND YOU CAN BUY

KEEP US IN MIND

For fine quality bees and dependable service, Second to none. The foundation of our business is now and has been for 37 years to furnish you with the best that money can buy. Let us book your order now. Full weight, safe arrival. Health certificate and satisfaction guaranteed.

— PRICES —	1 to 11 each	12 to 100 each
2-lb. Pkg. with Queen	$4.25	$4.00
3-lb. Pkg. with Queen	5.25	5.00
Untested Queens	1.10	1.00
Tested Queens	2.10	2.00

Package bees F.O.B. express. Shipped parcel post by request, add postage.

NORMAN BROS. APIARIES **RAMER, ALA.**

THREE-BANDED ITALIAN PACKAGE BEES AND QUEENS

Shipped anywhere in United States and Canada

1958 PRICES FOB HAMPTON, SOUTH CAROLINA

	Qns. ea.	2-lb. & Qn.	3-lb. & Qn.	4-lb. & Qn.	5-lb. & Qn.
1-24 Packages	$1.40	$4.25	$5.25	$6.25	$7.25
25-99 "	1.30	4.00	5.00	6.00	7.00
100 up "	1.20	3.75	4.75	5.75	6.75

(For Queenless Packages deduct Price of Queen)

Queens clipped and painted if desired. Guaranteed safe arrival.

Health Certificate with each shipment. Shipper rated in Dun & Bradstreet.

TERMS: One third with order, balance 15 days before shipment.

H. C. BRUNSON **P.O. Box 188** **HAMPTON, S. C.**
Phones: 2151 5303

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National Monthly Magazine for Beekeepers

Canadian Bee Journal
Streetsville, Ontario, Canada

FLOWERS Quality ITALIANS

THAT STAND TEST for HONEY GATHERERS; GENTLE; PROLIFIC. BRED from select hives making 300 pounds or over honey. FUMIDIL-FED grafting and queen yards. HEALTH CERTIFICATE with each shipment We are prepared to fill all orders promptly. COME AFTER YOUR BEES or shipped express or P.P. PROMPT LIVE DELIVERY GUARANTEED. $1.00 deposit per package. Balance two weeks prior to shipping dates. ORDER NOW FOR CHOICE SHIPPING DATES. PRODUCER OF ROYAL JELLY ALSO.

All packages with select young laying queens F. O. B. Jesup.

2-lb. pkg. w/q	$3.75
3-lb. pkg. w/q	4.75
4-lb. pkg. w/q	5.75
5-lb. pkg. w/q	6.75

For Queenless Pkgs. deduct price of Queen

Select Queens (1 or 1000 airmail)	1.00
Tested Queens	2.00

FLOWERS BEE COMPANY
Jesup, Georgia, U.S.A.

SAVE 1/2 ON
Transportation Cost

Order 3-lb. package bees with 2 Queens each; divide on arrival.

This practice has proved successful in many different areas for several years.

3-lb. pkg. bees with 2 queens each, $5.75.
Ship. Weight 9 lb. ea.

2-lb. 1 Qn. ea. $3.75.
Ship. Weight 8 lb. ea.
3-lb. 1 Qn. ea. $4.75.
Ship. Weight 9 lb. ea.

Will ship express, parcel post, or your truck.

ITALIAN
Package Bees & Queens

John S. Shackelford
Rio Oso, Calif.
Phone: Wheatland, Cal. 3491

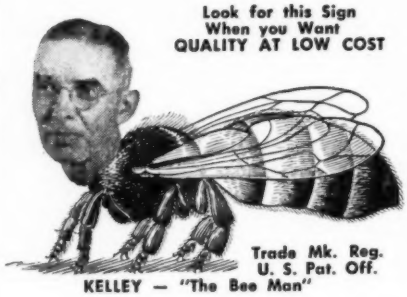
(ROYAL ITALIAN QUEENS)

Yes, you too can now get the queens with world wide reputation. Price even lower than some ordinary queens. Especially bred for Royal Jelly production. We certify we feed Fumidil regularly.

Queen price	$1.25
100 up	1.00

O. K. ANDERSON & SON
Box 193 Coffee Springs, Ala. U.S.A

Protect Your Future. Buy Your Savings Bonds Now.



KELLEY — "The Bee Man"

KELLEY'S ISLAND

Improved three-banded Italian bees and hybrid queens direct from our own farm. Shipments start April 1st, express or parcel post shipment. Thousands of extra queens.

	Queens	2-lb. w/q	3-lb. w/q
1-24	$1.25	$4.25	$5.25
25-99	1.20	4.00	5.00
100-up	1.15	3.75	4.75

THE WALTER T. KELLEY CO.

Clarkson, Ky.

Prepare for the Future . . . .
Buy United States Savings Bonds Regularly!

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